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COTTON-SEED for winter packing is recommended by W. H. Pridgen in *A. B. J.*

IF CALIFORNIA is to fail on honey this year, we Northerners must scratch around to keep the market supplied.

CABBAGE-LEAVES, externally applied, are recommended in the *Medical World* for ulcers and diseases of the skin.

EVERY YEAR it's a fresh surprise to find how the bees can run out of stores so rapidly when raising so much brood in spring.

FOUR MEN who find large hives best have reported. Now let those report who have tried the two side by side and find small hives best.

"IS MORE HONEY to be obtained by allowing or preventing swarming?" is a question before both *A. B. J.* and *C. B. J.*, but the juries disagree.

CAN'T CALIFORNIA bee-keepers "chip in" with the fruit exchange, and then can't the rest of us "chip in" with the California bee-keepers?

ESCORT BEES may be introduced with a queen or not; but when a queen is shipped to me I always kill the escorts on account of the remote possibility of foul brood.

MISTAKEN ECONOMY to make top-bars out of any thing but clear lumber. By throwing out the knots you can make them out of cheaper stuff, but in a little while your frames will be twisted.

THE ABILITY to attach spacers to frames already in use is not of great value, from the fact that such frames have not the wide and deep top-bars, therefore the whole frame must be changed.

THE 8 OR 10 FRAME matter has been through the query-box of the *A. B. J.* The replies surprise me; 5 vote for 8 frames, 9 for 10, 5 say 8 for comb and 10 for extracted, and 7 are more or less non-committal.

RAMBLER, p. 415, tries to switch me off on to the hay business. I've hardly capital enough to run the straw business, and it isn't well to try to spread too much, Rambler. Better stick to the straw, hey?

"QUEENS CRAMPING" is a thing I never saw, although I've clipped all my queens for 25 or 30 years. But I don't hold them by the wings when clipping, but by the thorax. [Right here is the secret of no cramps.—Ed.]

SHARP PRACTICE isn't confined to the Yankee nation. Capt. Hetherington writes a letter to *C. B. J.*, declining to write an article for publication, and the *C. B. J.* publishes the letter as an article. Makes a good article too.

THE COMB-LEVELER of B. Taylor has the advantage that it is applied to the whole surface at once, hence works more rapidly, has a constant heat, and wax of the darkened edge of comb runs off instead of on to the comb.

TAKEN ALL TOGETHER, I never knew a more favorable year up to the middle of May. Bees are booming, white clover luxuriant, and I hardly see how we can fail of a crop unless we have one of those years when the blossoms yield no nectar.

"WE WOULD not give a straw for a nation which could not do a little boasting," says Holtermann. I don't want to boast; but I'm willing to give a "straw" to say that, on this side the line, we can beat any Canadian bee-journal—except the *C. B. J.*

THAT DOUGH to clean wall paper, that artist Murray gives on p. 422, seems like a good thing. Say, Rob, why not bake the dough after cleaning the walls, and clean the carpet? I've seen

professional carpet-cleaners in Chicago cleaning carpet with half a loaf of stale bread.

"As soon as bits of white wax are seen along the top-bar, put on supers," is the rule generally given. It wouldn't do for me to follow it this year, for many of my colonies showed the white wax before apple-bloom. They had not been fed at all, and some were rather scarce of honey. I never saw the like before.

STEPHENS' SPACERS have one advantage over the Hoffman frames. The Hoffman will not allow a bottom-bar  $1\frac{1}{2}$ , accurately spaced, and the Stephens will. I don't agree with you, Ernest, that the Hoffman is better because it sticks more. The less "stick" the better for me. But the Hoffman is less trouble and expense. [But we want our frames to stick a little.—Ed.]

"BEE-PARALYSIS yields to mild measures in the North," says the editor, p. 425. I can go farther than that, and say that, in Northern Illinois, it needs no "measures" whatever. I've had a little of it every year for years; never did a thing for it, and I think it's hardly as bad as it was years ago. [Yes, we have *seen* less of it in the North, but have *heard* more of it in the South.—Ed.]

A WISE WIFE, who wants to do the most good in the world, will plan to sit as much as possible when doing her work. Potatoes don't taste a bit better when pared standing. Dishes can be wiped just as dry sitting. The woman who sits as much as possible in preparing a meal will furnish just as sweet a meal, and she'll look a good deal sweeter herself as she sits at table. Don't let your wife waste her strength standing.

SMOKING BEES out of supers, as given by S. S. Kissel, p. 422, works just as he says. I've taken thousands of sections in that way; and when you're in a hurry to get home from an out-apiary there's no quicker way unless it be to pile a dozen on a hive and smoke the bees down. But when you can wait, it takes much less work to pile up 8 or 10 and put a Lareese escape on top; and the sections don't smell and taste of smoke.

YES, INDEED, friend Root wanted me to run one of those two-wheeled affairs. I thought I'd commence gradually, and tried a one-wheeled concern. It tuckered me all out before I pushed it around half an hour. If one wheel was so hard on me, wouldn't two just about kill me? No, sir; I'll try no bicycle till I can run a wheelbarrow. [Your logic tears us all up. But seriously: In the case of the bicycle you *ride* one wheel and push the other. In the case of the wheelbarrow you not only push the wheel, but *walk* and *carry* one-third the burden. Come, now, get off that "fence," and get on to a bicycle—not a wheelbarrow.—Ed.]



## SYMPOSIUM ON BEES AND FRUIT-FERTILIZATION, AGAIN.

### ADDITIONAL FACTS ON THE SIDE OF THE BEE.

[During the early part of this spring, it will be remembered that we had quite an extensive symposium on this subject in two different numbers. We had not intended at that time to give any more until fall; but so many new and valuable facts have developed that we have decided to give them to our readers while they are fresh. As usual, they show very conclusively the valuable part played by the bees in the fertilization of blossoms. Indeed, with the new evidence and the evidence presented before, no reasonable sane man can longer question the important work they do in this great problem of fruit-growing. The first article is from Prof. Cook, and is a strong one.—Ed.]

I presume, Mr. Editor, that you did not expect so soon to open again the subject of honey-bees as friends of the fruit-grower; but we have new and important data which are of too much interest to keep back. Early in April, just as the blossoms of our deciduous trees were opening, I inclosed twigs of the same number of blossoms in two close bags, and marked a third contiguous twig with the same number of blossoms. One bag was left untouched till the blossoms all wilted. The others were opened when flowers expanded, and bees were caught and put in. This was done when the bees were working freely on the bloom not under experiment. Close examination showed the bees well dusted with pollen. The bees were seen to work on the flowers in the bag, and pollen was seen on the stigmas of the flowers. The trees experimented with were cherry, plum, pear, and apricot. I will give in brief only the results at this time.

In every case where bags were used, and no bees put in it, there is not a single fruit except on apricot. In every case, with bees in the bags, there is fruit, and in some cases more than where no bags were on the twigs. In the apricot there is more fruit on the twig covered away from the bees than on either of the others, and more where a bag was used, and bees put in it, than on the uncovered twig. This shows conclusively that apricots do not all need cross-pollination. These experiments prove conclusively that a sack over the fruit does no harm; but that bees or other insects, to cross-pollinate the flowers of many of our fruits, are absolutely essential. Other insects will answer, but they can not be depended upon. There can be no doubt that many kinds of fruit are sterile with their own pollen, or even that from any flower on their own tree or any tree of the same variety. That is, for a blossom to fruit, pollen must be brought to it from blossoms of another variety of the same kind of fruit. Myself and students are now trying a large number of experi-



ments to make the above a demonstrated fact. The practical conclusion is: Mix varieties in planting—that is, do not set more than one or two rows of the same variety side by side, but mix in other varieties, and put those side by side that blossom at the same time. Also have, within a mile of every large orchard, a good apiary. Cold wet weather prevents fruiting, mainly by keeping bees away. In California the rains are rarely if ever so continuous as to prevent a crop, so he who observes the two suggestions offered above will almost certainly have fruit each year.

Prof. Bailey, the very able horticulturist of Cornell University, writes: "Bees are much more efficient agents of pollination than wind, in our fruits; and their absence is always deleterious."

The Division of Vegetable Pathology, of the Department of Agriculture, has just issued a most valuable bulletin on "Pollination of Pear-flowers," by Norton B. Waite. Mr. Waite says: "Incidental mention has been made of insect-visitors. We should not proceed without laying some stress upon the importance of these visits. The common honey-bee is the most regular, important, and abundant visitor, and probably does more good than any other species." He says, further, that cool or rainy weather interferes *seriously* with insect-visits. Many varieties (22 out of 364 of those he experimented with), says Mr. Waite, *require* cross-pollination; and the pollen must be from a different variety. Bees and other insects are the agents of the transportation of pollen. In summing up, Mr. Waite says—and this from crucial decisive experiments: "Plant mixed orchards, or, at least, avoid planting solid blocks of one variety. *Be sure* that there are sufficient bees in the neighborhood to visit the blossoms properly. When feasible, endeavor to favor insect-visits by selecting sheltered situations, or by planting windbreaks."

This all seems pretty good. When the horticulturists talk this way we may rest assured that the warfare against bees is nearly over. Very soon the fruit-growers will appreciate the good work of the honey-bee, and will urge bee-keepers to locate right among their fruit-trees. This is what we are coming to, and that very speedily.

Claremont, Cal.

[Well done, friend Cook. You have already, in your California home, furnished perhaps the most positive evidence in regard to the value of bees for fruit that has yet been given; and your quotation from Mr. Waite reminds me of something I saw recently, I think in the *Rural New-Yorker*. Somebody made a specialty of growing Bartlett pears, and nothing else, and he finally planted an immense orchard all in Bartletts; but to his surprise this great orchard could not be made to produce pears as did his former experiments on a smaller scale. A remarkable thing, however, soon became evident: The trees around the outside of the orchard bore

tolerable crops; and one more strange circumstance let out the secret of the trouble. The nurseryman who filled the order for the large number of Bartlett pear-trees, by mistake got in a few trees of some other kind of pears. These were scattered through the orchard; but wherever such a tree was found, the Bartletts all around it bore crops of fruit. It was an expensive lesson; but the fact stood out so plain and clear that there was no gainsaying it; and just now we are beginning to discover that fruit-trees, at least to a certain extent, are like strawberries—there are perfect and imperfect varieties. These need to be near each other in order to secure the best results. No mention was made of bees in writing up this fact; but the truth brought out has a very close bearing on this whole matter. Come to think of it, the experience of almost all of us is also full of facts bearing on this subject. During the past winter I had a large fine tomato-plant in the middle of the greenhouse, which plant has been in bloom continuously since December. Not a tomato has set. Of course, I might have fussed with hand pollination; but this is rather out of my line, and I have been too busy to attend to it. A few days ago I moved the large plant out into the open air, and now it begins to set fully.]

A. I. R.

#### SOMETHING FROM OUR EXPERIMENT STATION IN REGARD TO FERTILIZATION OF STRAW- BERRIES, TOMATOES, ETC.

By E. C. Green.

*Friend Root:*—I notice in GLEANINGS of May 1st that you speak of raising strawberries under glass. We have been trying to do the same thing for the past five years, but without very great success; but I have noticed this to be true, that, when we had a small number of plants, they did well; but when we had a large number they did not do as well. This, I think, was due to their not being properly fertilized.

I remember one of the best crops we ever raised was in an old lean-to greenhouse heated with a flue. We thought that, if such a good crop could be raised in such a poor greenhouse, in our new house we could do much better. So the next winter we put out quite a large number; but the results were almost a failure.

The past winter I raised as nice strawberries as I ever saw grown out of doors; but I went over them carefully every day with a camel's-hair brush, and carried the pollen from one to the other. I think you are as fortunately situated for raising strawberries in the winter as you are for heat, if you grow them when the sash can be taken off and the bees get a chance to work at them; but if they have to be covered closely during the flowering period, to protect them, they will not do as well.

I was much interested in the discussion in GLEANINGS the past winter on the good that bees do the fruit, and thought of adding my experience; but it seemed as if there was an extra abundance of evidence to prove that they are useful, and very little to prove they are not.

You may think that, if the perfect-flowering strawberries are used, all will be well if the blossoms are not worked with; but I believe

that even then good fruit can not be had unless something is done to disturb the blossom.

Quite an interesting fact came under my observation this winter in tomato-forcing, along this line. We had in one house about 200 Dwarf Champions that were planted in August; and by the time winter set in they were as fine and thrifty plants as one could wish to see, and setting their fruit nicely. We felt glad to think what a nice crop of tomatoes we should have; but when January came, and they commenced to ripen up their fruit, the bulk of it was about the size of hickorynuts, *without any seeds*.

The tomato, as you know, is a bisexual flowering plant, but in this case it is evident that the pollen from the same flower was what is called "self-irritant." If bees or some other cause had carried the pollen from one flower to another, or one plant to the other, there would have been a good crop. I have been doing something in cross-fertilizing tomatoes this winter, and have been surprised at the ease with which they crossed, having used the Potato-leaf, Dwarf Champion, Ponderosa, Peach, and several of the common kinds, making in all about 40 crosses. I do not think I shall fail to get seed except in a few of them. I expect that, from the seed, I shall get a lot of "mongrels," as one writer in GLEANINGS calls such crosses; but I prefer to call them crossbreds, as "hybrid" has a different meaning.

#### STRAWBERRIES.

You ask in the May 1st GLEANINGS if there is known a better plant than Jessie for a fertilizer. I think that the Jessie stands at the head of the list as a fertilizer; but as a berry-producer and plant-producer it has proved such a failure in many places that it has to take a back seat for the Parker Earle, Bederwood, Enhance, Muskingum, and perhaps others.

Wooster, O.

E. C. GREEN.

[Friend Green, you have hit it exactly, although it did not occur to me until you suggested it. By referring to the picture on p. 270, April 1, you will notice that my bed that has been fruiting strawberries ever since February is right in the midst of our apiary. In fact, you can see the bee-hives along it on either side. Well, there has not been a month during the past winter when the bees have not been busy more or less on the blossoms of the strawberries. The bed was a curiosity to visitors on account of the great quantity of bloom all winter long; and it was something more of a curiosity to the yellow Italians. Whenever a day occurred that they could fly, the sash was either taken clear off from the strawberries, or else tilted in the way I have described, so as to leave openings at every third sash. Well, I should never have thought to mention it unless you had suggested it, that the Italians soon learned the trick of getting in at these openings; and even when the weather was unfit for them to fly in the open air, they would dart out of their hives and go under the glass like a shot; and then they would work on the blossoms until they were satisfied, or a cloud came over the sun, and then they would dart out and go into their hives. It was really funny to see them catch

on to the program; and toward night, when I thought best to close the sash, a good many times I had to chase the bees out, to avoid shutting them in over night or longer. The steam heat under the beds, of course, contributed to give them a nice place to have a frolic.

Now comes the important point. I never saw strawberries fruit in the open air or anywhere else with such wonderful profusion as have these. I have never raised any larger or finer-shaped berries, and several have remarked that they never tasted more delicious berries than those grown under glass during the months of February and March, and I am sure you are right about it. The unusually complete fertilization secured by the bees was certainly one secret of the crop; and this same bed is loaded with berries even now. The plants right over the steam-pipe have very little foliage comparatively, and it looks funny to see two or three dozen green berries to a plant, where there are not half a dozen green leaves. I have for some time felt satisfied that, in forcing strawberries to get early plants or berries either, they should have all the open air and direct sun that the weather will permit of. In our locality, so near Lake Erie, the sashes may be entirely off (for strawberries) more or less of the time during every winter month.

Now, in order to force strawberries successfully we want some method of handling the sash with little trouble and expense. At present I know of no better way—that is, no better way without using expensive machinery—than to have the beds not very long—say sufficient to hold 8, 10, or 12 sash, piling them up at each end of the bed, half at one end and half at the other. With the light sash we are now making, two boys will put them on and take them off with surprising celerity, after they have learned the trick thoroughly. Boys ten years of age will do it easily. In fact, our smallest boys rather enjoy being allowed to put on or take off the sashes. Hurrah for the strawberries in February, March, and April! But remember you want some hives of Italians close by the strawberry-bed. Another thing, you will notice that our strawberries and bees are *now* protected by a most magnificent windbreak of evergreens.]

A. I. R.

BEES AND FRUIT ON THE ISLANDS; A REPLY TO THADDEUS SMITH ON PAGE 407.

[I wish to say first, that my good friend Thaddeus Smith is one of the oldest friends of GLEANINGS; in fact, if I am not mistaken he was a subscriber when the little sheets were printed by windmill power, away back in the early '70's. Now, perhaps he may be correct in saying that large crops of fine fruit are raised, even though no honey-bees are to be found on the island; but I am sure he is making a big mistake if he intends to convey the idea that *no* insects of any sort take the place of the bees. If there is not a humming among the branches of those Lombard plum-trees when they are in bloom, it will be a state of affairs that I have never yet witnessed. And so with the strawberry-plants. There are a good many different varieties of small insects, perhaps belonging to some department of the bee family, that are always found flitting from blossom to blossom. Their legs and bodies are usually covered with the dust so familiar to every one, and very likely these insects perform the office of fertilization without the aid of the bees. I might almost say that, if Thaddeus Smith tells me this is not true, I will be willing to pay him a visit while fruit-trees are in bloom; but I shall surely take along my spectacles. Will other observers please notice what I mention, and tell me if I am not right?]

A. I. R.



[The following from Prof. Cook, although not exactly in the line of this discussion, is akin to it, and we produce it here, requesting our readers to be free to express themselves on the two questions that Prof. Cook proposes at the close of his article.—ED.]

*Dear Mr. Editor:*—I addressed a large meeting of the Southern California Horticultural Society yesterday at their annual meeting at Pasadena, on the subject of pollination. My paper received respectful attention, and I think nearly if not all present were convinced of the usefulness and even necessity of bees in this important role. This seems an important step in the right direction. I feel very certain that the fruit-men will more and more appreciate the value of bees as the most valuable and efficient agents in the work of pollination; and I consider it proved beyond any question that cross-pollination is absolutely necessary with many varieties of our most valued fruits.

In the discussion which followed my paper, it was stated that, in certain localities where fruit was dried, the bees were serious destroyers, and still more frequently a great annoyance. I was asked what suggestions I could offer in view of these facts.

I suggested that the bee-keepers and fruit-men hold a joint meeting next winter, and confer together. This was once done in Michigan, and was a marked success. It can be arranged that the fruit men meet Tuesday and Wednesday, and the bee-men meet Wednesday and Thursday in the same place, and then on Wednesday evening a joint meeting be held, when topics of common interest may be fully discussed. This seemed to meet with no little favor. I also suggested that, as bees are so imperatively necessary where orchards are so common and large, no wise person who was rightly informed would think for a minute of removing them from the region of the orchards. The question should be, how we can keep them with a minimum of harm and annoyance. To decide this question should be the object of the joint meeting and conference which I hope may be provided for at an early date.

In such cases, where there is a seeming or real clash of interests, extreme caution and wisdom, no less than abundant patience and charity, should be exercised, lest, by hasty action, much harm result.

In this State, the hydraulic mining was carrying the fine earth to the valleys, filling up the rivers, to the imminent risk and danger to agriculture. Great floods were the result of this filling of the valley river-beds with the clay. A law was passed which stopped all hydraulic mining, and this business was checked. Many a man with bright prospects ahead was doomed to disappointment; towns were changed from sites of activity to places of no business, and millions of gold that should be helping business and the world lies locked up in the California hills. It may be the wisest thing,

under the circumstances of our ignorance, to be done; but if so, it is an unfortunate condition, and should make us all work and pray for more knowledge.

Now, we must make no such decision in this case, but must study to know how we may retain the good and escape or at least minimize the harm. I wish to ask for suggestions. Can some method of using screens be adopted, that shall make the bees powerless to get at the drying grapes, peaches, pears, etc.? or in case that is impracticable, would it not be practical and not very expensive to move the bees, in the localities where fruit-drying is an important industry, that the men engaged in this laudable work may escape annoyance? I should like to hear through GLEANINGS and the *American Bee Journal*, from bee-keepers, especially of the fruit regions of California, on these two questions:

1. Desirability of a joint meeting of bee and fruit men.

2. How can we manage our bees so that our neighbors may not be harmed or even annoyed?

We must remember that bees are very valuable to the pomologist; that they are valuable—very valuable—to the bee-keeper, and through him to the world in furnishing a very wholesome and delicious article of food. We must keep the bees, but must study to know how we may keep them, and yet not vex our neighbor. We must all live "peaceable with one another," for "are we not all brethren?"

Pomona College, Claremont, Cal.

## THOSE CALIFORNIA HONEY-YIELDS, AGAIN.

A REPLY TO WM. G. HEWES.

By C. H. Clayton.

I have just read the communication of W. G. Hewes, on page 374, with amusement. I am at a loss to know why Messrs. Wilkin and Corey were singled out as the "prevaricators" par excellence. Mr. Hewes is not a member of the State Association of Bee-keepers; was not present at the meeting, and evidently doesn't know what he is talking about. The matter of average yield was brought up by Prof. Cook asking "if any considerable number of those present had kept records of the yield for a term of years," as he had "heard some very glowing accounts of the great yields." Mr. McIntyre, Mr. Moffatt, Mr. Richardson (I think), Mr. Corey, Mr. Wilkin, Mr. Mercer, and quite a number of others representing widely separated localities, reported their yield for periods of from ten to fifteen years, Prof. Cook noting the same. I presume he has his memoranda yet.

There was no report from Mr. Hewes' sheep range. I call it a "sheep range" because there is where you find the ticks he mentions. As to "prevaricators," I for one certainly object to some of the bee-keepers of California being thus

indiscriminately spoken of. As a class they are the peers of those engaged in any avocation. Their business standing is good; many of them are church-members; and yet, forsooth, they are "prevaricators"! I'll bet a cooky Mr. Hewes' "exceptional" yield is piled up in the warehouse yet, and he is grouchy because he has not sold it.

Now, at the meeting before mentioned I don't remember any one classing 1893 as any more than a "fair" yield. To my certain knowledge there were persons present who did not report, whose yield for 1893 was far above the average reported. In my own case I did not report, because 1893 was the only year of which I had exact record. I will now report:

I began extracting April 19, and concluded the latter part of June, making the season rather short. I visited *every colony once a week*, and the highest number of colonies extracted any one week was 95—the second week in June. I cased up and sold 21,600 lbs. The lowest price obtained was 5½ cts., F. O. B. I'm no "prevaricator" either—haven't any "ticks" on my range, neither do I sell honey on "tick," but have the records here to show that the above are *facts*.

Now, Bro. Hewes, if I were you I'd pull off those green goggles and join the Association. Get out from among the "ticks," and learn that your neighbors are wide-awake, progressive men of standing in their communities, and not "prevaricators."

Lang, Cal., May 11.

[Mr. Hewes is one of our valued correspondents, and usually accurate; but perhaps he erred in this case. We are sure, however, that he did not *intend* to convey the idea that his neighbors were not progressive or that they were prevaricators. Hello! Here is something from Rambler on this subject.—Ed.]

#### ESTIMATES ON CALIFORNIA HONEY.

In answer to what Mr. Hewes has to say on page 374, in relation to estimates on average honey-yield, I would say that my estimate was based upon my two years' experience, and the testimony of experienced bee-keepers. It has been my endeavor, as secretary of the State Association, to get reliable statistics from not only Southern California, but from other portions of the State; but from Mr. Hewes' opinion of the character and reliability of estimates made by bee-keepers, I shall have to deal with a crowd of inveterate liars. I certainly had a better opinion of the leading bee-keepers of Southern California; and, after all is said and done, I believe them reliable men. The reports at the State convention were made by Messrs. Wilkins, Corey, and Moffatt, as all of the above gentlemen have apiaries not many miles from Mr. Hewes. I am looking for something further from them upon this point. In fact, I am willing to leave the matter in the hands of the men who have had the longest experience, and

shall have confidence in their statements, even if they call my estimates excessive.

During the past year this State produced over 7,000,000 lbs. of honey. To produce this amount there must have been some large yields; but our friend may question the above figures, of course; if they go against his preconceived notions, it is very easy to call in Mr. Spoonedyke and reduce the figures, for Mr. S. is very accommodating.

RAMBLER.

#### QUEENS CHANGING.

HOW QUEEN-BREEDERS UNJUSTLY RECEIVE THE CREDIT OF SENDING OUT HYBRID QUEENS, OR QUEENS NOT IN ACCORDANCE WITH THE ORDER.

By Jennie Atchley.

I have a letter before me in which a customer states that last year he purchased a tested queen of me, and she produced nice pure bees last year, and this season she turned out to be hybrid. Now, I have been watching this thing for years, and I am satisfied beyond a doubt that such is not the case. I will mention that, for several years, we have placed a mark of identity upon all tested queens sent out, and some have been returned as hybrids after being all right at first, then turning hybrid, and, in *every instance*, the queen has been a different one from the one sent out. Now, I know there seem to be some hooks and crooks in nature; but I have failed to find it in the queen-bee. Her mission is as straight as a bee-line, and it is we poor human beings who get crooked and mistaken. We do not have queens returned because we think bee-folks are dishonest—no, no; but, on the contrary I find them to be, as a rule, the most upright and straightforward of all people. But there are so many people who get fooled in introducing; and, the queen being superseded by swarming or otherwise, we like to see and learn for our own satisfaction how it was. Now, there are many ways for a queen to be superseded, especially where there are several colonies kept in one yard. Some time during a season a starved-out swarm may enter a hive and kill the queen, and the queen of the stray colony be accepted, or they may raise another; or by swarming or common supersedure. In all my experience and observation I never knew a case where a pure queen turned out to be a hybrid, nor do I believe in a second mating of the queen. Where proof seemed to be strong in the direction that a queen had turned hybrid after being a pure one, it has *always* turned out that it was another queen in her stead. When the case is thoroughly investigated I should be pleased to hear from others on this subject, and see if there is such a thing as a queen turning over. Coming in contact with so many queens, and by close observation, I have failed to find any thing to lead me to believe that a queen



changes through life the color of her bees, or ever is mated a second time, which is just about one and the same thing. Please let us hear the testimony through this journal.

Beeville, Texas.

[You have brought up a subject that sorely needs ventilation. Our own customers have at times complained that queens we have sent them, at first produced pure Italians and afterward hybrids. We have always told them that there was an exchange of queens. But this explanation seldom satisfies, and the customer feels that we either sent a queen in the first place that was not strictly pure, or else one that did not keep pure. Of course, this last is absurd. Yes, we have had customers complain that a select queen sent was nothing but a poor hybrid, when our record showed that the hive from which the queen was taken had pure bees in it at the time of her removal, or until the progeny hatched from the new queen in her place.

Here is another case where the queen-breeder is unjustly accused: An inexperienced beekeeper imagines his hive queenless when it is not. He sends for a queen, introduces her (or thinks he does), and in the course of time he finds a queen laying in the hive, and *assumes*, of course, that this is the new queen. In the majority of instances, when the queen is already present, the stranger is killed, and the old queen-mother goes right on assuming her accustomed duties. The purchaser does not notice the exchange, but he does notice that the newly hatched bees are no improvement, and then he accuses his queen-breeder of dishonesty; or, if not that, requires him to send another queen, agreeing to "return the old queen." Now, on the part of the purchaser there is an honest misunderstanding; and on the part of the queen-breeder there is an assurance, as his records show, that he sent just what he agreed to. But to prove it to his customer, he can not; and so, to keep up his record for fair dealing, he sends another valuable queen; or, in effect, sends two queens at the price of one, and the purchaser has the use of only one.—ED.]

## T SUPER, HEDDON SUPER, AND WIDE FRAME.

### SEPARATORS VS. NO SEPARATORS.

By Dr. C. C. Miller.

The article of Hon. R. L. Taylor, on page 327, with its bloodthirsty footnote, claims my attention. Like him, I have used "the Heddon super and the wide frames very largely." I have also used the T supers largely, but, unlike him, I have discarded the first two and retained the T super.

I have puzzled quite a little, Bro. Taylor, over your statement that there is no trouble in packing sections produced without separators. When the Heddon super first came out, a good deal was said about its being a success without separators, and I was sanguine about them; but I never succeeded in getting satisfactory work, and I supposed I was stating a general truth in that respect. True, I could manage, not without trouble, I confess, to pack the sections; but it was a good deal harder to unpack them without breaking cells open. If you can succeed in it, I wonder wherein the difference lies. Is

there any management that will make the bees build straighter without separators for you than they do for me?

You are counting that an occasional section will be fastened to a separator, and you seem to count that as so much against the separator. I think that is a mistake. Why is it fastened to the separator? If I mistake not, it is in all cases because the bees have put more honey on one side of the section than the other, thus making it swing out of plumb and against the separator. If the separator were not there, would it not bulge out of its place so as to be just as bad as with the separator? There is, however, this difference, that, when the section is cut away from the separator, it will bleed; but I never knew it to bleed much, and the adjacent section is not affected as it is without the separator. Now, unless it be true that in some way the separator *causes* some sections to be built out of true—and I never heard that claimed—then I think it is true that all the sections that are out of true with separators would be so without, and in addition there are untrue sections without separators that would be true with separators. Allow me to say, however, that I don't have sections fastened to separators nowadays. I use bottom as well as top starters, not for that special purpose, but primarily to make sure that the sections shall be well fastened at the bottom.

Admitting, however, that separators are not a necessity for every one, is it fair to consider that separators are an essential part of the T super? Please take it on its own merits, and compare fairly. You say the Heddon super can be emptied more rapidly than the T super if the time required to get the separators out is considered. In other words, getting the separators out takes time. Well, so can the T super be handled more rapidly without separators. And if you don't need separators with the Heddon, neither do you with the T.

I don't agree with you, that "it is fair to say that at least twice as much time is required to get the sections fixed in the T supers," but there is probably something in knowing how. I don't think we take much more than half as much time now as we did at first. Leave separators out of the count, and I think it will take a very little longer, but I'm not sure it will take any longer to put sections in the T than in the Heddon super.

I think you are wrong in claiming that "the Heddon case has the added advantage, that sections filled in them contain considerably more honey, so that less foundation, fewer sections, and fewer shipping-crates, are required." In that, you are talking about the difference of separators or no separators, and please remember there's no law to compel you to use separators in T supers. You are right in claiming for supers without separators all the advantages I have quoted, unless it be the matter of foundation; for with a comb of honey of a given thick-

ness it will take just as much foundation, whether with or without separators. There is a further advantage that you do not mention, although I am sure you must be familiar with it, and that is, that a section without separators has a plumper, nicer look. Certainly if I could raise as straight sections without separators I should prefer sections without them.

Now, look here, Bro. Taylor: when you come to compare T supers with wide frames I feel almost sure there's something I do not know about; and when you make positive statements about them as a result of your experience, without any reasons, I suppose I may be allowed to do the same, even if some of my conclusions are directly opposite to yours. Cleaner sections are obtained with T supers when taken off in good season, for there are no angles to tempt propolis on top, while with the wide frames it is not possible to have the edge of the section correspond so exactly with the edge of the top or bottom bar but that inviting angles will be left. But if the sections are left on after the harvest is over, then the wide frames are better, for at that time bees will paint propolis over the flat surface of the top of a section in a T super. Sections are as completely filled and capped in one as in the other. The T super can be filled in less time than wide frames. It takes twice as long to empty the wide frames. There is no difference in the number of partly filled sections.

Now, there's one comfort in the case. Seeing the wide frame fits the climate of Michigan, you can use it; and I can use the T super, which I have found to fit a good deal better in Illinois.

Marengo, Ill.

C. C. MILLER.

[Separators are now so generally used that the bee-keeper who gets along without is the exception. The Doctor seems to have no trouble from bees attaching combs to separators, and he uses wooden ones at that. See editorial, elsewhere. —ED.]

### RAMBLE 109.

GOLD-MINES; SLEEPING IN A GRANARY, ETC.

*By Rambler.*

"Pass the word along the line, and let's move on the enemy!" That's about what Mr. Powell said one afternoon when he called at my ranch. I saluted by scratching my head, and saying, "I am ready;" and early Monday morning found us mounted on a long-bodied wagon, starting on a sixty-mile journey; and the enemy we had in view was about 200 colonies of bees, all in fighting order, and they were to be moved 40 miles. The feet of our pony team pattered over Victoria Bridge, in Riverside, waking the echoes up and down the "arroyo." We followed Victoria Avenue for a few miles, and then turned toward the mountains, following another "arroyo" for several miles. We were now beyond the ranches, and the broken country seemed of but little value for a bee-range, as there was an utter absence of sage or other honey-producing plants.

An occasional sheep-corral, and a lonely shepherd with his sheep and faithful dog, were the only living things to break the monotony of the journey. Our shepherds are very pensive in appearance; their gait is governed by the hunger of the sheep or the abundance of the feed. Much hunger and little feed causes a rapid movement of the herd and a consequent move of the herder: much feed and little hunger gives the herder an easy time. The shepherd and his staff and crook have always been inseparably connected in my mind—imbibed, I suppose, from Bible pictures. Our shepherds are far from Bible standards in various other ways; and instead of reclining gracefully on the hooked staff they substitute a bottle of wine.

Our ponies had a very good road with little up grade; but now after getting up into the mountains the grade was more acute, and zigzagged around the mountain-side—a sudden twist to the right or the left around sharp spurs, under overhanging rocks and through narrow defiles. I felt so "elevated" that I came near breaking forth into the following song:

While up the mountain climbing  
I sing this merry strain:  
The echoes catch my music,  
And send it back again.

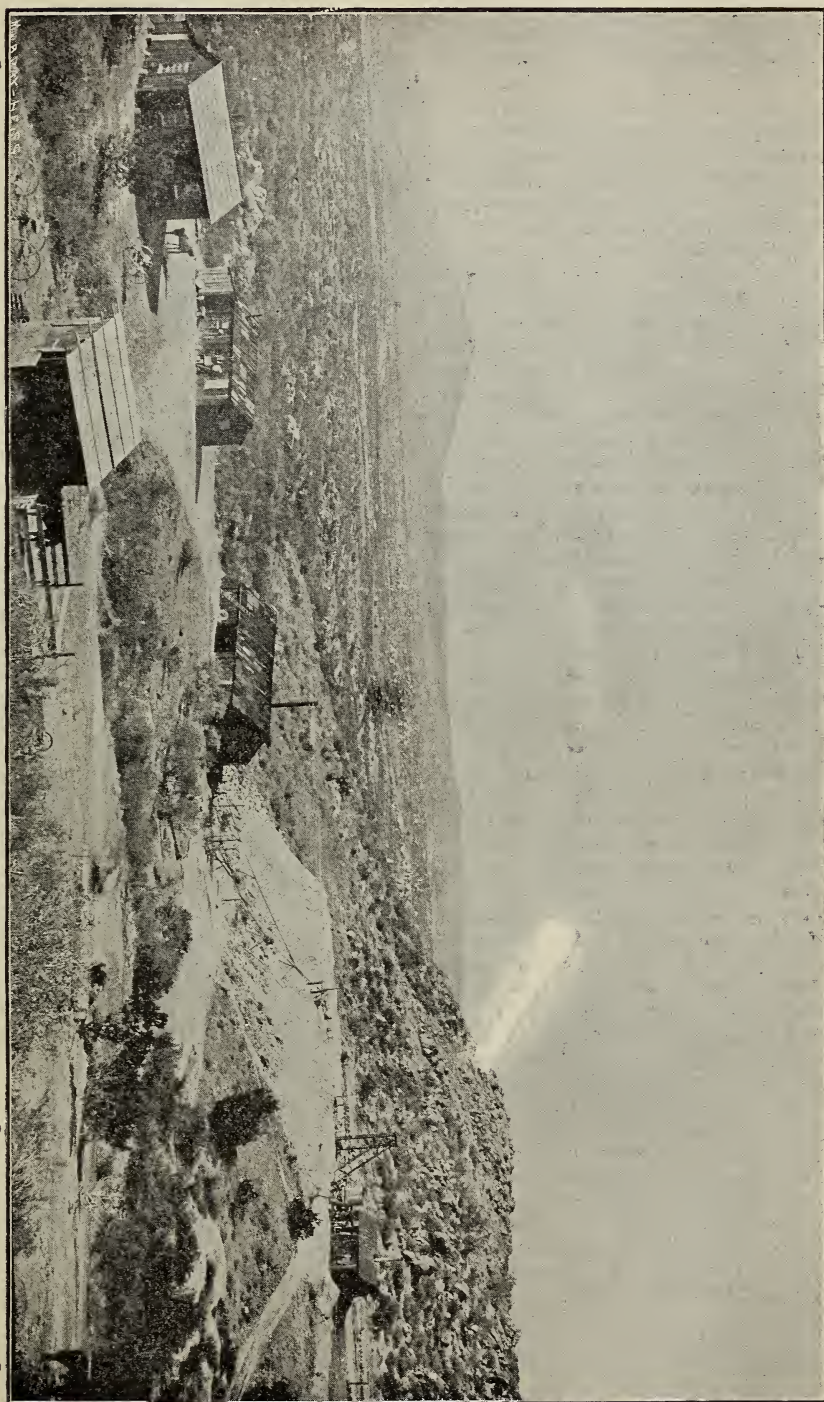
I was afraid the strain might be too much for my friend Powell. He was an excellent manager of the lines and whip—especially the latter. I didn't wish to see him skip off down the mountain, so I just whistled the strain, and so there was no harm done. We at length crossed the divide, and we found a comparatively level country, with an abundance of rocks ahead of us. This is a very fair honey country, with not many apiaries.

Gold-mines seem to be the fad here, and several shafts were being sunk into the bowels of the earth. We fed our tired ponies and ate our noonday lunch near the Rosina mine. This mine had been worked some time, and it is a type of all the rest in the vicinity. The shaft had been sunk about 200 feet, and at an angle of about 60 degrees. The buckets for hoisting the quartz were operated by a hoisting-engine; and from the shaft it was transferred to the stamp-mill, a little below. I secured a photo, which will give a very good idea of the mining-camp and its surroundings—the white quartz from the shaft, and the country, covered with granite boulders and greasewood, and a sprinkling of sage. We did not see gold lying around loose; and a question about the mine was answered evasively. Gold-miners are all non-committal. They are so used to sinking money in holes in the ground, and taking out only a small portion of what they put in, that being non-committal becomes a second nature to them.

There are several mines on this range of mountains; and as we pass over the range and down toward Elsinore we pass the Virginia mine, now closed, and the Good Hope mine, now



ROSINA STAMP-MILL, QUARTZ GOLD-MINE.





in a prosperous condition, and worked with a large force of men. There were evidently some rough characters here, for a man had been recently killed in a shooting-affray. Mr. LaRue owns a prosperous apiary near the mines, and there are others scattered up and down the canyon.

Night caught up with us, as it has a habit of doing when people are traveling, and we forthwith camped by the roadside near a respectable-looking ranch. It seemed to be a highly prosperous ranch; and among the other products of the soil were several boys, dogs, cats, poultry, and cattle. The boys were very attentive, and had a great desire to lay in a fund of useful information. They knew us to be bee-men from our wagon, such rigs being common thereabout. They informed us that Mr. Crawfoot was a very big bee-man, owning hundreds of colonies just over the eastern hills. We were subjected to all sorts of questions. One little biped wanted to know if I had any little boys 'nd girls 'nd cats 'nd dogs at my house. His little snoozer of a dog just then grabbed for our dish of canned beef. Our frying-pan corrected his bad habits, and distracted the attention of all concerned. The boss of the ranch also sat down for a friendly chat; and as we were about to turn in under our wagon he gave us permission to sleep in the granary. Having eaten a large supper we accepted his invitation with grateful hearts.

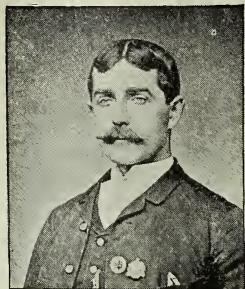
As we tucked ourselves comfortably in our horse-blankets, among the sacks of barley, pil- lowing our reflective ends on our shoes, from which we had previously extracted our feet, we mercifully thought of the poor people in our great cities who have not even the comforts of a granary with a hen-roost attachment in which to rest their weary and emaciated bodies. This hen-roost attachment of ours possessed a rooster with a very sonorous disposition; and at most unseasonable hours his disposition would break forth into a fortissimo chanticleer challenge. At the close of his exercise, a broncho, just through the board partition at my left, would draw about twenty feet of halter-chain through a ring, suddenly hump up his back, and groan. I think, however, it was a horse-laugh. He was practicing the bucking process, and laughing at the exploits to be performed on some tenderfoot the next day. As he would let up on his exercise the chain would run back through the ring; and the rhythm of that chain music, and the various other attachments to our granary, soon lulled us into undisturbed repose.

We hurried off in the morning before the boys got around with a new set of questions; and, having a good road, we sent the dust behind us at a good rate, and arrived at our destination at a little past the noonday hour. We were upon the McCombes ranch, and 200 colonies of bees, save 4, were to be prepared for removal in the shortest possible space of time by Mr. Powell and myself.

## DZIERZON'S TWIN HIVE.

HOW HIVES ARE USED DOUBLE IN GERMANY.

*By Karl Rudolph Mathey.*



KARL RUDOLPH MATHEY.\*

It is well known that the inventor of movable bars, to which combs were fastened, John Dzierzon, is likewise the inventor of a hive which he strongly recommends as the most perfect abode for the bees. This, together with the fact that his hive is very simple and cheap in construction, is the reason why the dual

form of hive is so widely disseminated.

The "twin" hive (as we will now call it) is not a two-story one, as one might conjecture from the name, but a single-story. It is called "twin," therefore, because of its peculiar form, two of them being used back to back, as seen in ground-plan in Fig. 2. The side and front walls are double, and packed with straw. The rear walls, which lie against each other, are made of single boards. Besides this, the hives have the additional twin feature of having their contiguous back walls provided with entrances of equal height and breadth, exactly opposite each other. These entrances are usually kept closed

\*We give above a picture of a man who has followed bee-keeping since the sixth year of his life, and who for nineteen years has been engaged in apiculture and agriculture with untiring devotion.

Our bee-keeping friend, Karl Rudolph Mathey, was born June 29th, 1859, in Battibor, Prussian Silesia. His father was a lawyer, but died suddenly in 1865. The mother gave her son a very careful education and training. The love for bees dates from his earliest youth. On his sixth birthday he received as a present from his uncle (a major in the German army) his first colony of bees, and the family gardener became his teacher. From that time on he has followed bee-keeping. In his eighteenth year he went to the University. Since the year 1884 he has been actively engaged as an apicultural writer. In April, 1879, 100 colonies of bees were already in his yard. In 1884 he opened up an apiary with 500 stocks for the sale of bees. From that time forward he followed the business of bee culture, and raising fruit-trees by the wholesale, and now has several bee-yards, with 1700 colonies in all, which are under the management of his brother. With the patience of a Job he has read nearly all works on the bee and its culture which have appeared since the invention of printing.

Mr. Mathey traveled, as member of a natural-history club in 1886, throughout Russia. In 1889 he traveled throughout France. In 1890-'91 he made the tour of Italy as a member of a party of students in natural history. Rome, Naples, Herculaneum, Pompeii, were visited. Mt. Vesuvius was also included in the trip. The party then traveled from Brindisi, by steamer, up the Nile to Assuan, in Middle Egypt; whence, after flying visits to various places, they returned to Cairo. From Cairo they proceeded to Alexandria, Port Said, Jaffa, and from there to Jerusalem. From the latter place they made several excursions, going down to Jericho, to the Jordan, the Dead Sea, and back over Mar Saba to Bethlehem, and then back to Jerusalem. The journey home was by way of Constantinople, through the orient, to civilized lands, each person getting home as soon as possible.

by means of a wedge-shaped block, as shown in the cut. To remove this block it is necessary to spread the hive apart a few inches, say a hand-breadth; and after this is done, the two hives can be made into one in a very short space of time. It can in this manner very easily be made a separate colony, or, on the other hand, be united with some neighboring colony. The length of these hives in proportion to their breadth is such that two, side by side, lying at right angles to two other hives lying side by side, and on top of them, will constitute a pair of double hives, or a two-story hive, as it might be called. Thus the bees of such a hive can have entrances at four points of the compass at

placed side by side, they will assume a square form, the upper layer corresponding to the lower. The height of a four-story hive (and which, consequently, would consist of eight hives) would be, allowing 16 inches to each story, 64 inches; but under all this is a platform about one foot high, to allow of the easier manipulation of the lowest hives.

Dr. Dzierzon has called this combination a "twin" hive because it is always used in couples, back to back, so that the two colonies may in winter keep each other warm. Whether the hive is made of wood, or wood and straw, it makes no difference as to the internal arrangement.

The Dzierzon top-bars are used. These rest in a groove, or rabbet (Fig. 4), 12 inches from the bottom; and above that there is an empty space for a cover-board.

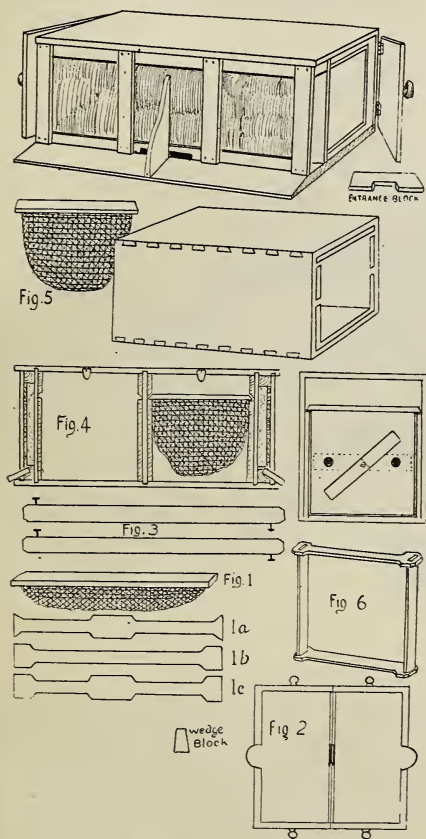
If one wishes to separate the brood-chamber from the honey-apartment, a division-board, as it might be called, is inserted.

At first Dr. Dzierzon used a simple bar of wood (Fig. 1), one inch wide and  $\frac{1}{4}$  inch thick, as a top-bar. These bars were cut as long as the hive was wide. To these were fastened strips of comb, which were then placed in the hive for the bees to draw out. The distance of the frames from each other was determined by the eye. Later these bars were improved by cutting in them scores  $\frac{1}{4}$  inch deep, shown at *a*, *b*, *c*, and these indicated the right distance for spacing the frames. This purpose was also accomplished by using wire nails, driven into the inch top-bars, one at one end and another at the opposite end and on the other side, as seen at 3. This was Dathe's invention.

To give the comb a good firm hold, the bees would always build it fast to the side walls of the hive. To obviate this trouble, Baron Berlepsch devised the little frame shown in Fig 6. The upper part of this frame consists of the bar already described, seen at *b*. The side pieces and bottom-bar may be dovetailed or nailed.

The height of this hive may be modified at will; but Dr. Dzierzon recommends 16 inches, of which one inch is for the upper and lower walls; 12 inches are devoted to the brood-chamber, which is filled with frames, and the remaining space of 3 inches serves as room for manipulation in taking off the covers.

Medina, May 1, 1894.



the same time. Dr. Dzierzon is fond of piling up these tiers three and even four high, covering them with a little roof, thus extemporizing a small garden pavilion consisting of eight hives, in pairs, lying crosswise of each other, so that, at each side, each two colonies may have an exit. The hives are of wood; the packing of the front walls is of straw.

Each hive can be opened at either side. They measure, outside, 16 inches high; and their breadth, as already stated, is such that, when

The yellow jasmine is a creeping, twining vine that grows in the southern portions of the United States from North Carolina to Mexico. It grows more luxuriantly on light sandy uplands than in alluvial bottoms. It blooms in February and March, depending upon locality—

## YELLOW JASMINE.

GELSEMIUM SEMPERVIRENS.

By Dr. J. P. H. Brown.



earlier further South. When in full bloom it presents a beautiful sight with its yellow trumpet-shaped flowers, covering the small bushes, often hanging in festoons, and twining around the trees, filling the air with a strong yet pleasant perfume. Its duration of flowering is about two weeks, depending much upon the weather. When there are heavy rains and much wind, the blossoms fall.

It belongs to the natural order *Loganiaceæ*, and is described botanically: "Stem twining, smooth and shining; leaves perennial, opposite, lanceolate, entire, dark green above and paler beneath; petioles short; the flowers are in axillary clusters of a deep yellow color, and fragrant; calyx five-parted, corolla funnel-shaped, with a spreading border, five-lobed, nearly

Dr. W. H. Burt, in his work on "*Materia Medica*," remarks in regard to the poisonous effects of gelsemium: "The retention of consciousness until very late in the poisoning, both in man and in the lower animals, shows that the drug has very little power over the higher cerebrum, although the drowsiness and the final loss of consciousness prove that it is not entirely devoid of such influence. The two most prominent symptoms caused by the drug are the convulsions and paralysis."

The hive-bee will work on the bloom; but it seems more from necessity than choice; for, when other forage is accessible, you rarely see a bee on it. The Italians frequent it much more than the blacks; in fact, it is rare that you see one of the latter on it. The flower yields more



THE POISONOUS HONEY-PLANT OF THE SOUTH.

equal; anthers oblong, style long and slender; stigmas two, two-parted; capsules elliptical, flat, two-valved, two-celled; seeds flat, attached to the margin of the valves."

All parts of the plant possess poisonous properties. Drs. Wood and Bache, in their "*United States Dispensatory*," describe the poisonous effects as commencing "with sensations of languor with muscular relaxation, so that the subject finds some difficulty in moving the eyelids and keeping the jaws closed. More largely taken it occasions dizziness, dimness of vision, dilated pupil, general muscular debility, and universal prostration."

Prof. T. G. Wormley obtained an alkaloid extract from the plant, which he termed "gelsemine"—a powerful poison. One-eighth of a grain injected into a strong cat killed it in one and a half hours.

pollen than honey; and what nectar is gathered is used up in breeding, so it is seldom that any is stored. Still, we have many cases on record where it had been stored, and, when eaten, caused all the symptoms of gelsemium poisoning.

It is very easily told when bees are working on gelsemium. The flower, being trumpet-shaped, they have to crawl in to get access to the pollen and nectar; and in turning around, their whole body becomes coated with the bright-yellow grains of pollen.

Whether the product of the jasmine-blossoms has any poisonous effect upon the bee is a question that has been discussed to a limited extent, pro and con. Those who took the negative side of the question were mostly persons who knew very little about the plant. To arrive at correct conclusions in a matter of this kind requires a long-extended observation, assisted by



many demonstrative experiments. I have been conducting observations for the last 25 years to determine this question, and I am satisfied that bees are susceptible to the poisonous product contained in the gelsemium bloom. At first they seem to be taken with a sort of shaking, or convulsion; the abdomen swells; they tremble, and either crawl or are carried out of the hive. If the colony is strong, half a pint to a pint of dead bees can be found in front of the entrance every 24 hours. Your black colonies will show very few. The trouble will be kept up during the duration of the bloom, and cease as soon as the flowering is past. The affliction (if I may so term it) is less perceptible during a stress of bad weather. It can also be controlled by feeding or by drawing the attention of the bees from the bloom.

As formerly stated, as quoted from the highest medical authorities, the poisonous effects of gelsemium are more perceptible on the nervous ganglia than upon the cerebrum. This, no doubt, explains the susceptibility of the bee to the action of this poison, as the nervous system of the bee consists in a great measure of a series of nerve ganglia.

Augusta, Ga.

[We have had so many inquiries in regard to this poisonous plant that we finally asked our friends in different sections of the South to send us green specimens of it. Why from different sections? Because we wished to compare them, to see if they were alike. A careful examination showed no difference. The freshest of the specimens was sent to our engraver, with a request to make a pencil-drawing, which was then submitted to Dr. J. P. H. Brown, for inspection. The drawing was so nearly accurate that but little change was necessary to make it perfect, and then we had it engraved, and the result is before you. Dr. Brown has taken great pains to study up the plant, and we are sure that we may accept him as authority on it.—Ed.]

### GIVE US FACTS.

*By James Heddon.*

I do not know that I can better illustrate to the readers of GLEANINGS the very trying position one is placed in when he is asked to prove a negative, relating to a charge of misdemeanor, than to call attention to the fact that common law is the very essence of logic. This being admitted, as it must be, it must also be admitted that we can reasonably ask no more of an accused, in the social world, than we may ask in the legal world. It is logically just as true, that we must consider and treat a man as innocent until he is proven guilty, in the social world, as in the court. Logic is logic in the one place just the same as it is in the other.

In the charge of "honey-adulteration," which has been brought forward against me, it is not only true that there has not been sufficient evidence discovered to convict me in law, but there has not been one-tenth part enough;

in fact, not any at all, that could possibly be termed other than the slightest circumstantial evidence. There has been no more logic in levying a fine upon my reputation and my business than upon my purse, without competent evidence. I wish to impress your readers that this matter, considered between municipal law and social ostracism, must have as much positive evidence in the one case as the other. There is no answer to this statement except the illogical answer of "precedent." It can truthfully be said, that it is not the common practice to demand the same evidence, before the multitude believe a member guilty, that is required by the jury before they bring in a similar verdict. The answer to that statement—which is true—is, that it is *too* true, and for that very reason the world is cursed with criminal gossip.

But if I do not mistake in my judgment of human nature, the late attack against my product has not injured me nearly as much as it has injured honey-producers at large, because a slight injury to each one would aggregate very much more than an immense and crushing blow dealt upon my head. Perhaps no truth can be told which will go farther toward ameliorating the damage than the one I have before repeated; viz., that no honey-producer can afford to adulterate his honey. I believe I have always carefully avoided boasting, and I am sure I have purposely avoided painting our business in glittering colors, afterward to be condemned by those who fail because they couldn't be measured in my bushel; but in this case the truth is demanded; and I tell it when I say that I can produce first-class extracted honey at less cost than glucose can or ever could be bought. I believe many other bee-keepers (although not all) can do and are doing the same thing. Now I ask you, in the name of common sense, why any honey-producer who has reduced the cost of honey to the minimum should go to an extra expense to degrade our product, commencing with his own property first? It isn't true; and to teach it is, as I said before, not only a charge of serious damage to the accused, but one of immense damage to our fraternity.

A cherished doctrine with me is, that truth is lasting, while error is weak and perishable. I do not believe in the theory of "holding the wretch in order," by deception, to say nothing of "fear." I believe that we, as bee-keepers, want to know the truth. We want to know it about glucose, which has so much to do with our product in the fancy and fears of bee-keepers. I do not believe that glucose is unwholesome in the least. It was born in Germany and France, where the laws and sentiments of the people are most radically against injurious food. It was adopted into this country, and swept like a cyclone into the first position as a sweet sauce. I do not believe that Americans

could be such fools as to partake in such a movement if the same was to their injury. Data do not show it. It is not so; *it could not be*. To prejudice the minds of bee-keepers, basing our cause upon such prejudice, is wrong, and simply means that the work has all to be done over again at a twofold expense. I am practically repeating what I said at Lansing and Flint. I believe it, and it will be well for those who honestly think I am mistaken, to kindly and logically set me right. They would at the same time be performing the same service to many other of my bee-keeping friends who think just as I do. The producer of sweets, who flies into a passion of rage, and begins to hurl epithets and false charges at a new competitor, occupies the same position as a section-manufacturer who would curse some bee-keeper because he had discovered (and by that discovery blessed bee-keepers and the world) a new material and process by which a superior section could be made and sold at the low price of 50 cents per thousand. Let us have the truth; we are told that "the truth will set us free;" it certainly will not enslave us. The more men know, the less they believe that it is untenable. I am not afraid of facts. If going into partnership with truth will starve me, I shall have the satisfaction of realizing, in my expiring moments, that I died in good company. But I am not afraid of that. Whether it be glucose or oleomargarine that is being decried, I have no respect for the movement if I can discover no logical reason for it, other than unwise selfishness. I detest its morals, and I fear its policy.

I have written the above for a bee-journal, and for its readers—*bee-keepers*—and if it serves no other purpose it may serve me the one of letting them know that I have convictions and do not fear to express them.

Dowagiac, Mich., May 21.

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### FAX.

*By Ellery Krum.*

Thay is more wimern bee-keepers raizin' queens fer sail than wuz ever heerd of afore.

Accordin' to Quinby signs, this is goin' to be a bad hunny yeer—the apple bloom wuz so skeerce that it kum and went 'fore the bees hardly knowed it.

I'd ruther have GLEENINS sort o' layin' round loose than to cripple these old friends of mine by sockin' nails through their spinal columns.

One thing sartin and shure about the 8-frame hive; you don't have to look over ten frames backwards and forwards half a dozen times to find a pestiferous hybrid queen.

Y' ever try wirin' frames 'thout usin' enny tacks? Purferate twice to begin with; put wire through and back, givin' it several twists, then pull down tite; thread the remainin'

holes, and finish as at first. It's just as neat, and much more substanshel.

Forest-leaves makes best stuff fer packin'. Thay don't draw moisture like chaff, and has the old-fashuned proteckshun of a holler log.

Wuz at Ingeanoplis tother day, and seen my bee-keepin' friend Walter Poulder. While there I seed sum of Root's extra polished seekshuns, and thay knock the sox off of enny thing I ever kum acrost in that line.

It pays to give your bees good proteckshun. All of mine is done up in leaves, and them that wuz packed deepest are overflowin' with bees already, and layin' out of nights; and what is gratifyin' thay have got brood—a hull passel of it too—bullt right next the hives in the *outside* frames.

Had a colony last seezin' on thick-top Hoffman frames that wuz too much crowded in the brood-chamber for lack of surplus arrangement, and, kontrary to expecttashun, the frames wuz burred, braced, and chunks of hunny stuck on to the end-bars. The frames hung true, and the spacin' wuz kerrect. Now isn't it a fax, Mister Editor, that one of the best prevenshuns of burr-combs is suffishent room durin' the honey-flow?

Oh the robber bee! he can't be beat,  
Jimmin' around for something to eat;  
Though the field is wide and the clover  
sweet,

He'd ruther be lootin' his neighbor fer  
meat.

But alas! the little piratical elf  
Is cheatin' nobody so much as himself;  
Fer he pokes his nose into cells of *glucose*,  
When he might be swiggin' the sweet  
from the rose!

[You are quite correct in regard to this burr-comb question; but has any bee-keeper any business to let any colony become so crowded that the bees have nowhere to store honey, except to push spurs of wax in every conceivable nook and cranny, and chuck them full of honey? Therefore we may argue that, with good management, thick-top Hoffman frames, with proper spacing, are a bar to these nuisances. We feel quite sure that, in the majority of the very few cases where it is reported that the wide thick top-bars do not prevent burr-combs, it is due to the very fact you mention—that the hive was overcrowded with honey. Every bee-keeper knows it is very bad policy to have his hives lack for room in the height of the season.—Ed.]

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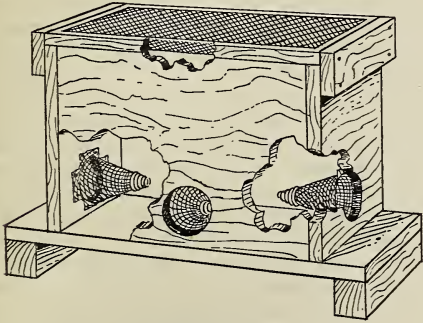
### McINTYRE'S ROBBER-TRAP.

*By J. F. McIntyre.*

At our State convention last fall I happened to state that I caught the robbers in a trap. Since that time I have had several letters asking for a description of said trap. Last season, after the honey-flow I reared and introduced over 300 queens; and, being much annoyed by a band of educated robbers that had learned enough to go wherever the smoker was, I de-



terminated to try to trap them. The plan of keeping them busy by slow robbing had not come out yet. After trying several devices, and failing, I finally hit on one that was successful. It is made of an ordinary 10-frame Langstroth extracting-super, without frames; a bottom-board is nailed on the bottom, and a three-inch hole bored in each side and end near the bottom. A short wire-cloth cone is pushed into each hole, and nailed; a  $\frac{3}{8}$  hole is made in the apex of each cone, and a West cell-protector screwed on to finish out the cone. The cover



ROBBER-TRAP.

is made of two sheets of wire cloth, one nailed on each side of a frame the size of the top of the hive. This is to prevent the robbers inside from passing the honey used as a bait through the wire cloth, to the robbers outside. I hang a frame of honey inside for bait. It is necessary to have plenty of light above to draw the bees away from the cones below; but the hot sun should not be allowed to shine in on the bees, for it will kill them. By setting this trap out in the apiary with a lighted smoker on it I soon caught all the robbers that were in the habit of following the smoker and killed them. I would not kill bees in the spring or any other time if they were of any value; but these old hairless robbers were of no value at that time. At other times I catch the robbers and keep them imprisoned until dusk, when they are glad to get home and quit.

After I had quit working with the bees in the fall I went out to the apiary one day and found a weak colony overpowered. The robbers were just tumbling over each other, and the whole apiary was in an uproar. My honey-house has bee-escapes on the windows, so I just carried the hive inside that was being robbed, and placed the trap on the stand where the hive was. In a short time I had nearly all the robbers in the trap. I kept them there until about dusk in the evening, when they were glad to go home, and next day all was quiet.

Fillmore, Cal.

[Something similar to this has been suggested before; but we can not now recall when or where. The idea is a valuable one; and during those seasons when robbers are especially bad

we do not know but we should be tempted, after caging them, to destroy them altogether. As in the case of human beings, so with bees; when they once learn bad tricks—when they once acquire the habit of stealing—it is hard for them to get honey honestly thereafter.—ED.]

### THE BEST HONEYS OF THE WORLD.

HOW TASTES VARY ACCORDING TO LOCALITY.

By Chas. F. Muth.

*Friend Root:*—Our friend Hubbard, of Walpole, N. H., is asking for my idea on sourwood honey; and as the matter may prove interesting to others, and I know that our friend will see it, please give it space in GLEANINGS.

Sourwood furnishes a very good honey, of light color and good flavor. I should put it in the same class with basswood of the North and Northwest, or the orange-blossom or saw-palmetto of the South. We have just now a new arrival of orange-blossom honey. It is of good quality and fine taste, and we advertise it as something "new and choice;" but we shall be no more able to raise a customer for it now than we were at former trials. A certain preference would be given to basswood over sourwood honey, because of the former having a lighter color. All the above will be sold to manufacturers principally, almost exclusively. The most popular and most praiseworthy honeys are: Northern white clover; mangrove of Florida, and sage of California, in their purity—i. e., without an admixture of other qualities. According to my experience, this trio includes the only qualities accepted by the public for table use. Almost all other qualities go to the manufacturers principally.

It must be remembered that our tastes are cultivated. While basswood honey is of fine quality, and, no doubt, popular in the basswood region, still it will never be successfully introduced in a clover country, for table use. I have tested the matter for many years. Horsemint honey, very obnoxious to our taste at first, loses its bad flavor gradually by our handling and tasting it. When my friend Dr. Lay said, "Horsemint is the honey for a man of Texas," and when I replied that it amounts to nothing in business (what he and I should like), both of us were correct. Only those qualities which are popular, or can be made so, count. All qualities next to the above-mentioned trio, in regard to flavor and color, go to manufacturers. The idea I intend to convey is, that, according to my experience in the business, white-clover honey stands at the head of the list; next comes mangrove of Florida; next, sage of California; and next, any amount of other varieties too numerous to mention, all of which can be sold to manufacturers only, because of their lower prices. However, any thing is possible these times, the business features of which are abnormal and unnatural.



Since we sold at 6 and even at 5½ cts. per lb., by the carload, each of first-class California and of clover and basswood honey, we can hardly find customers for dark honey at any price. The bottom has come out of prices of all articles of late, which, I hope, is temporary only.

Cincinnati, O., May 7.

[What Mr. Muth has said in regard to the taste of individuals in different localities is quite true; and along with this idea it may be well to say that, in certain parts of York State, a considerable number consider buckwheat the finest honey in the world. They like that rich strong flavor and dark color. To them, no honey can stand in comparison with it; and in regions where basswood seems to be the chief source of supply, no honey is considered equal to it. It is well that there is this variety of taste; because if everybody universally agreed that one kind of honey was the best, honey from all other sources would necessarily bring a lower price; but as it is, there are quite a number of "best honeys" in the world.—ED.]

#### THAT NEW PLAN TO PREVENT SWARMING.

By G. M. Doolittle.

While I would not on any account discourage new plans (for out of the invention of new plans for the various manipulations of bees has come *wonderful* things of late), yet I can not feel that it would be right to let pass unnoticed some of the obvious errors which are found in the article by Bro. Edson Hains as given in GLEANINGS on page 405. To let these errors pass unnoticed would perhaps cause many to put time and money into such a swarming-preventive arrangement, by way of building new bee-hives or by altering old hives over, boring holes, etc., in them, with little if any prospect of success, as I can see it; while a word of warning may save some from going into this thing headlong, and allow those who wish to experiment along this line to do so understandingly. In the first place, the plan is not a *new* plan, for it is very similar to the D. A. Jones plan which was given to the world some ten or fifteen years ago. The Jones plan was to allow the queen from six to eight combs for laying in, which were placed in the center of the hive with perforated zinc on either side and over them, with two or three combs near the entrance, and between these and the queen's apartment two wide frames of sections were placed, while more wide frames of sections were placed back of the queen's apartment, and finally sections placed over the whole top of the hive. As soon as the six or eight frames were filled with brood, three of them, having brood in the most advanced stage, were taken out and put in the place of the three combs in front of the sections, and next to the entrance, while those combs were placed in the brood-nest to give the queen plenty of empty room. In two weeks the three combs in front, now

nearly empty of brood, were substituted for three with nearly mature brood again, from the brood-nest, and so on through the season, thus keeping the queen's apartment empty of honey, with plenty of room for eggs, while the bees could store their honey in the sections in front and overhead without going into the brood-apartment at all unless they desired.

The whole thing looked so reasonable to me that I made five hives on this plan, and in early spring put five good colonies into them, working them according to instructions, with the result that every one of them swarmed, and the whole thing was a complete failure so far as the merits claimed for it were concerned, as I gave in the columns of GLEANINGS of about that time. It matters not whether the queen can go out with the swarm or not; so long as the bees contract the swarming fever, and that fever continues, they are of little value as a colony for storing honey in sections to the best advantage, and I can see nothing in the Hains plan which will prevent their contracting the swarming fever, more than there was in the Jones plan. The whole thing is based on the false idea that bees coming in from the fields loaded with nectar go directly into the sections and deposit that nectar in the cells. Mr. Hains says, "When I put on the surplus case I place it so the bees can have ready access to it from the combs in front of the excluder, without passing through the zinc. This partially keeps the honey-gatherers out of the brood-nest and saves them the trouble of going through the zinc heavy laden with honey, and it prevents them from emptying their load right into the brood-nest where the queen is about to lay her eggs." This is only the old idea over again, which caused an entrance to be placed at the tops of the frames of thousands of the first-made Langstroth hives, as well as at the bottom, so that the bees in returning from the fields with their loads of honey could go direct to the sections and thus be saved the time, trouble, and travel of climbing up through the crowded hive with their loads. I have lain hours enough, when put together, to make days, by the side of a single-comb observatory hive to see what I could find out in this matter, as well as other matters, and I never yet saw a bee coming in loaded from the field, deposit the load of nectar it had, in a cell of the comb, unless honey was so abundant that every bee was so filled that it could hold no more, which does not happen once out of ten thousand times; but the load is always given to one of the younger bees which has not yet entered the fields as a field worker, and taken by this bee and deposited where it is wished. Again, the same thing is proven when we change a colony from German bees to Italians, by changing queens some time before the honey-harvest. There comes a time when all the German bees will be field-bees, and all the

Italians will be inside workers; and if this change was made so this time comes in the height of the honey-flow you will see none but black bees going in and out of the entrance; while, if you take a look at the sections, you will find only Italian bees there at work, or *vice versa*, according as the change of queens happens to be. Thus it will be seen that all plans to save the field bees traveling into the brood-nest of any hive, by way of "comb-ladders," etc., are fallacious.

Again, Bro. Hains seems to expect, if they do swarm, and the queen happens to squeeze through the zinc, she will stop on the two outside combs; but, according to my experience with the Jones plan, this will not be the case; for the queen is just as anxious to get entirely out and away from the hive she has formerly lived in as any of the other bees which go with the swarm. Another thing I notice is, that "undesirable drones should be kept in the brood-nest." Don't you do it, for there is no one thing that makes me feel "edgewise" toward perforated zinc as does this matter of its confining the drones to the hive, where they rush around pell-mell every day from one to three o'clock trying to get out, and kicking up a disturbance generally till their life is worn out of the them; and after they die they are still worse than they were when alive; for the workers will tug and pull at them in the vain effort to remove them from the hive, till the hair, legs, and wings are all pulled off; and, finally, if there are too many of them they clog up the zinc, and rot or ferment, and become a stinking, sickening mass, unless removed by the apiarist. No, no, Bro. Hains; either remove all drone comb from the apartment where the queen is, or else provide some means for the drones to get out of the queen's apartment.

Again, I notice. "Virgin queens, being smaller, will be able to get through the excluder to take their flight." By close experimenting and measuring, I find that the thorax of a virgin queen is just as large when she is hatched, or six days old, as it ever is; and as it is the *thorax* which prevents a queen or drone going through the perforated zinc, any queen that can go through when a virgin, can go through when she is fertile, providing she exerts the same energy to get through later on in life. This she is not apt to do, except in cases of swarming, and this is the reason why so many queens in full laying powers do not go through the zinc, while virgins do, and not because the virgin or fertile queen at swarming time has a smaller abdomen. Lastly, Bro. H. assumes, and this assumption is accorded to him by the editor in his footnotes, that the bees dislike to go through the perforated zinc. Now, if this is really so, we as apiarists of the nineteenth century had better dispense with it, only in cases where it is absolutely necessary to use it, and have it go out to the world that, whenever

we do use it, we do it with the full understanding that we do so at a sacrifice of dollars' worth of honey to accomplish the purpose we are after. How is it, brother and sister bee-keepers? are we using perforated metal at a loss in honey?

Borodino, N. Y.

[This is timely and to the point. There is always some one of our old veterans, if not the editor, who is prepared to say whether an idea is old and whether there is any thing in it. As you intimate, we were not prepared to say ourselves that loaded bees would take the shortest route to the super. If it is true, as you say, that they turn their loads over to the young bees and they in turn deposit it in the combs, there would be nothing in the new plan. Mr. Doolittle has made quite a study of this matter, and, if we are correct, his conclusions have been indorsed by one or two others. But over against this there is this fact: Years ago we once left, in the height of the honey-flow, some combs leaning against the entrance. The loaded workers, instead of going into the entrance, deposited their loads themselves in the aforesaid combs; and one or two observers have since said that they would also store in the first two combs near the entrance, leaving the young bees to transfer it to the supers.]

But you say that this plan before us was tried by D. A. Jones and others—yourself included—and that there proved to be nothing in it. It is indeed important to know this at this time. In the mean time let us have facts from actual observation as to what the field bees do with their loads, as a rule, on arriving at the entrance. Definite knowledge on this point may make it necessary to make some modifications in the brood-chamber. Your last point is well taken, if bees do dislike to go through zinc. We had not thought of it in that light before. The mere fact that bees will store tons of honey above it, does not look as if they objected to it. So far, extensive bee-keepers say that they can not discover that it makes any difference in the yield of honey.

*Later.*—Since writing the foregoing we have received a letter from H. W. Funk, of Norval, Ill., stating that, five years ago, he tried a non-swarming plan, quite similar to the Hains plan, on 10 colonies. They all swarmed, he says, and sooner than the rest of his colonies.—Ed.]

## CALIFORNIA ECHOES.

*By Rambler.*

One dollar per colony is the assessment on bees in California.

Chalon Fowls' letter to the boys is not so much boys' play, after all, out here. Hundreds of colonies are caught that way in decoy hives, and not a few make quite a business catching and selling such swarms.

Of course, Dr. M., there is more honey left in the brood-chamber when the colony is run for comb honey. There is also much honey left in the brood-chamber when the colony is run for extracted honey, if there is a queen-excluding honey-board in use.

Oh, no! we never laid up any thing against the manufacturers of the secret flat-bottomed foundation. This is a free country, and everybody has a right to conduct any legitimate



business according to his own ideas, even if said ideas do smack of our grandmothers' days.

In the vicinity of Fallbrook, San Diego Co., there are fifty apiarists, with 6000 colonies of bees. The amount of honey in 1893 was over 200,000 lbs.; 75 per cent of it was comb honey—pure as when distilled in Dame Nature's cups and shaded by Flora's beauteous hives, inferior to none. So says R. A. Neff, in the *Fallbrook Observer*.

"Blessed are the peacemakers." Prof. Cook gave the people in Bloomington, Cal., a talk upon how the bee aids the fruit-culturist, by the pollenization of the blossoms. The fact presented was news to some of the fruit-growers present. The effect was beneficial, showing the dependence of one industry upon the other. Such talks often will result in harmony. Again, "Blessed are the peacemakers."

That is just as we expected, that you would all come around to our California view and say that galvanized-iron tanks were good enough for honey. Perhaps something is due to the fact that California persisted in using them, not only for honey, but for drinking-water. Honey is very rarely allowed to stand in a tank until it candies. It is no small job to dig it out. The digging also has to be done in the night, otherwise the bees will insist upon helping. The bee-keeper is very careless who allows his honey to remain long in a tank.

I would say to Bro. Elwood, that my authority for saying that the New York bee-keepers were secretive over their honey yields was from a successful bee-keeper who dwelt for several years in Cherry Valley. I do not wish to make the application sweeping against all of the bee-keepers of New York, nor even against all in Central New York; for I think too much of my native State and her noble sons; but I wished to bring out the figures, and compare results. Our latest figures, compiled from railroad and steamship lines, puts our shipments for 1893 at about 7,000,000 lbs.



#### DELAYED FERTILIZATION.

*Question.*—How long may a virgin queen be kept confined in a nursery-cage or otherwise, before being allowed to take her wedding-flight?

*Answer.*—The thought put forth in the above question is something which I consider of doubtful expediency. I do not believe it possible for any queen to be *just as good* a queen after being kept confined so she can not fly out to meet the drone, when nature prompts, as she would be if she had her liberty to do as she pleased. So far as my experience goes, all per-

fect queens will fly out to meet the drones when from six to ten days old, during the months of June, July, and August, if the weather is favorable for such flight; and any contrivance which prevents their doing so is an injury to the future value of the queen. If the weather is unsuitable, this same queen will have no desire to go out till such a day comes; hence there is no uneasiness, consequently no injury to her value. But confine her once on a nice day when she would otherwise go to meet the drone, and she is injured to the extent of the efforts put forth to accomplish her purpose. Now for some pointers along this line, as I have experimented quite largely in the vain hope of having queens mated in confinement.

As given above, the rule is for a queen to go out when from six to ten days old; but during the months of April and May, also of September and October, queens frequently do not become fertile till they are from two to four weeks old; and in one case I had a queen become fertile in late October, when she was 32 days old. All these queens proved as good, so far as I could see, as did those which were mated at about the usual time as first given; and from this I argued that, if I kept a virgin queen confined till she was from three to four weeks old, she would be as good as any, the same as were these later-mated queens, their late mating being brought about by weather not suited to give them the inclination to meet the drone. So I kept queens in nursery-cages and otherwise till from two to four weeks old, then introduced them to frames of hatching brood or boxes of queenless bees; took them into the fields with me where drones congregated, in cages, with and without bees, letting them out, when they would always return to the cage, even though not a bee accompanied them in the cage; put them with drones in barrels having glass tops; under tents with drones, into dish-covers, etc.; but I never yet had a queen mated, to my certain knowledge, unless she flew from a box or hive of some kind having both bees and *comb* in it; while not one of these queens which were confined past the time when they had a desire to fly to meet the drone proved to be as valuable as queens allowed their own sweet will; and some of those kept confined till three or four weeks old before commencing to lay never laid worker eggs to an amount sufficient to fill five Langstroth frames. After trying nearly every kind of short cut, as they are called, to secure laying queens, often, from nuclei, by using virgin queens of advanced age to take the place of queens which are sold, giving to queenless bees frames of hatching brood, etc., I have settled down to the plan of giving a mature cell in all cases where a queen is removed in such a way that we desire a virgin queen to take her place, as being much the best plan of any, taking all things into consideration.



## STORING AND FUMIGATING COMBS.

*Question.*—I have about 800 empty combs. How can I protect them from the moth? and what is the best method of fumigating them?

*Answer.*—If the questioner wishes to keep these combs for an indefinite time there is no way except to fumigate them and then store them where the female moth can not have access to them. But if he or she expects to utilize them during the present month or fore part of July, fumigation may not be necessary. My plan of storing combs from which the bees have died the previous winter is to store them in some dry airy room, where they can be hung two or more inches apart. In storing them I select out all that contain much bee-bread or pollen, and place them by themselves where I can use these first; then I select all having but little pollen in them, and place these where they will come to hand next after those first named; then I select all which are old and black, and have these next at hand. While those having been used but little by the bees for brooding purposes, and having no pollen in them, are left to be used last or latest in the season. All white combs in which no brood has ever been reared, whether containing honey or not, and that have been taken from the hives during the fall, winter, or early spring, are almost moth-proof, or, at least, I have never, to my remembrance, had such combs disturbed by the larva of the wax-moth, where kept as above for any term of years; but when such combs are taken from the brood-chamber of the hive during hot summer weather, and stored away as above, then they may be troubled some. Combs stored two or more inches apart, with those having the most pollen in them to the front, need not be looked after in this locality till June, when they should be examined; and if any fine webs are noticed about the cells containing pollen, these should be given to the bees as soon thereafter as possible. By about the tenth to fifteenth, look after those having little pollen in them, and by the 25th look after the old tough combs, while those which the bees have used but little for brooding will rarely be touched before July 4th to 10th. In this way I have no difficulty in using all the spare combs I may chance to have before the moth troubles them to an extent tending to injure them.

But if we wish to keep combs during a whole season or more they must be fumigated, or else have been exposed to a temperature of about zero during the previous winter. Where this latter has been the case, pack them away in early spring in some box or closet which is moth-proof and they will keep for ever, or as long as the closet or box keeps, providing no female moth is ever allowed to deposit eggs on them. To fumigate, place in a tight room, or in hives which will sit closely on each other, without bottoms, when we burn sulphur to the

amount of a pound to every 400 cubic feet contained in the hives or room. In sulphuring combs there is little fear of using too much sulphur; for should a deposit of sulphur occur on the combs, thereby giving them a greenish tinge, it will not harm as it does on comb honey. In sulphuring honey, *too much* care can not be taken in guarding against the possibility of fire; for a room filled with the fumes of burning sulphur is a poor place to go to extinguish what may prove to be a conflagration unless extinguished in time. For this reason, an iron kettle, partly filled with ashes, with live coals on the ashes, with the combs so hung that none of them can melt and fall in the fire in the kettle, is the best thing to use to pour the sulphur on. If you wish the combustion of the sulphur to be complete, too much must not be poured on too small a surface of coals, otherwise a part of the sulphur will not burn as it should.



## BEE-VEILS—HOW TO WEAR THEM.

ANOTHER PLAN, ESPECIALLY ADAPTED FOR LADIES.

*By Miss Emma Wilson.*

I have been quite interested in reading about the different devices used for fastening the bee-veil, but so far I don't think I like any of them as well as my own—probably because it is my own, and is old and well tried, as I have fastened my veil so for years. Dr. Miller has also used it for some time, and pronounces it a success. He has been wanting me to write about it ever since Mr. Hutchinson gave his device, but I have kept putting it off. Finally some remarks of Mr. Hasty, in the *Review*, have stirred me up to write. What he says, like all that he writes, makes very interesting reading.

I get the impression that he has formerly been in the habit of tucking his veil inside his shirt-collar, and Mr. Hutchinson speaks of doing this also. Now, I should think that would be a most uncomfortable, choky way of disposing of a bee-veil. I don't wonder they want some different device. Mr. Hasty seems to have been very much pleased with the Porter method. Still he says, "But (would you believe it?) I am not altogether happy yet. Like the children of Israel in Egypt, I sometimes 'fall a lusting,' and want to put my honey-dripping fingers in my mouth. To untie the string of the new device, and loosen up, takes too much time. Who will invent an elastic side entrance, or something that will let me get at my 'potato-trap' with the minimum of hindrance? Moreover, I am sadly dependent on my spectacles, and want to

put them off and on frequently. In this I can't so well deny myself as I might in the other case."

He also refers to Mr. Ernest Root's method of wearing his bee-veil under his suspenders, and says it will do very well for the men, in warm weather. "But," he says, "in such a case, whatever and ever are the ladies to do, pray tell?" Now, I think that Mr. Hasty need not worry about the ladies. When it comes to fastening on a bee-hat or a bee-veil, they are away ahead. I confess, my way is so simple I never thought of telling any one about it until one day Dr. Miller, who always lets his hang loose, complained of bees bothering him by getting under his veil, when I asked him why he didn't fasten his veil down as I did mine. He did so, and has fastened it down ever since. He had seen me fasten mine down for years, but I suspect he considered it rather fussy and a waste of time, though I think it would take about three times as much time to get one bee out from under the veil, to say nothing of the sting.

I will say, for Mr. Hasty's benefit, that Dr. Miller uses his spectacles, and samples honey quite often too, without unfastening his veil. We use a bee-veil with an elastic cord around the bottom. In the center of the front of the veil, at the lower edge, we place a large safety-pin, catching it through the hem of the veil, over the elastic cord, so there will be no danger of tearing out. It is always left hanging to the veil when not in use. When we put our hats on, the pins are there, ready for use. I usually fasten my pin by catching it through a button-hole; if not, I pin it to my waist. Dr. Miller pins his to one suspender when wearing neither coat nor vest. One pin is all that is needed, and the hand can be easily slipped under the veil when necessary. I pity the poor men, who can not pin their hats on with a hat-pin. However, Dr. Miller thinks he gets on very nicely by tying his hat on with strings when it is very windy. But then, he doesn't know the comfort of a hat-pin.

Now, Mr. Hasty, please try my way and see if it isn't simpler, easier, more comfortable, and saving in time, having the security of the Porter plan, with the added advantage of comparatively free intercourse with any part of the face.

Mr. Hutchinson thinks an elastic in front would result in numerous folds in front of the face to obstruct the vision. In this locality, such a thing doesn't happen.

Marengo, Ill.

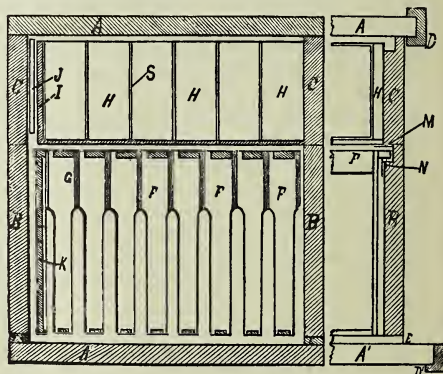
[It is seldom that we do much with the bees unless it is so warm that we can work by working briskly with comfort without coat or vest; and then we know of no plan that is quite so handy as the suspender plan, illustrated in our last issue. The only objection is, it can not be used by the ladies. So far we know of no plan for then, that is any better than the one suggested by Miss Wilson. At all events, we would have the veil so arranged that honey-drippings, that will somehow get on the fingers, may be

licked off; for there is no comfort in handling a smoker or any other tool with sticky fingers, and we are not afraid to lick our fingers clean of most of the honey that may accumulate on them during the operation of handling heavy combs, for instance. Perhaps some of you may think this is a slovenly way. Think of it as you may, it is the way we clean honeyed fingers except when the grass is dewy, when we just simply run them through the blades, till the sticky honey is wiped off. But when working in the hot sun most bee-keepers find it necessary to take a drink of water occasionally. We do not even stop to raise the veil—we drink through it; and clear water never soils the veil nor harms it; and, besides, the line of vision is away above the point that may be temporarily obscured by the particles of water.—Ed.]



#### THE NEW DOVETAIL HIVE.

In the article by Dr. Miller, following, the reader will get some idea of the recent improvements that have been made in the Dovetailed hive; these are only slight, and confined entirely to the brood-frame and follower. The following cross-section will show you that the new hive is practically the old one.



Some time ago a number of our subscribers, conspicuously among whom was Dr. C. C. Miller, advised that the top-bar of the Hoffman frame be made  $1\frac{1}{2}$  inches wide, and full  $\frac{1}{2}$  inch deep at the sides. The one last year was  $1\frac{1}{2}$  wide, the sides being cut down to allow for the comb-guide. On comparing a large number of reports it was evident that the wider and deeper top-bar gave better results in the exclusion of burr-combs and especially brace-combs, or those combs built between the top-bars.

The extra width makes exactly  $\frac{1}{4}$ -inch space between the top-bars, or what is now regarded as the most correct bee-space, in which the bees are the least liable to build comb or deposit propolis. The demand for this change became so strong that we finally consented to make the top-bars wider and deeper; but by making the top-bar  $1\frac{1}{2}$  inches wide, we found we should run into a snag, as it didn't leave finger-room sufficient to get hold of the ends of the frames when spaced so close together. We, therefore, at the suggestion of one of our subscribers, Mr. J. A. Scudder, narrowed down the projecting



end of the top-bar, leaving it only  $\frac{3}{4}$  of an inch wide. Incidentally this gave the bee less chance to attach by propolis the end of the top-bar to the hive rabbet.

By extending the top-bar down to full  $\frac{7}{8}$  inch deep it would leave no comb-guide, so it became necessary to leave a bead with a trough, as it were, on each side; but the outside edges would have to be blunt in order to prevent the bees from building combs to the sides instead of to the proper comb-guide in the center. The accompanying engraving shows the new frame.

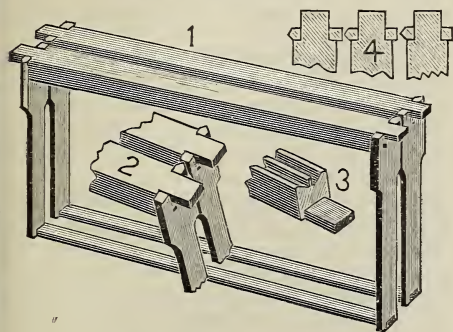
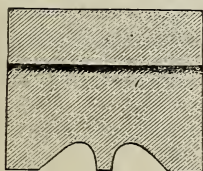


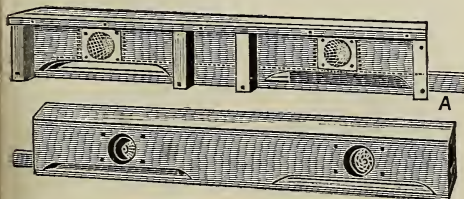
Fig 1 shows the frames as they appear together in the hive; in Figs. 2 and 4 the narrowed-up ends of the top-bar shows more plainly. Fig. 3 shows the under side of the top-bar with the comb-guide.. Unfortunately the engraving is incorrect; the outside edges should be four times as wide as the center or comb-guide, or like the accompanying cross-section. The top-bars as thus-



made may be used without foundation.

We have also changed the bottom-bar from  $\frac{3}{8}$  square to  $\frac{1}{4} \times \frac{1}{4}$  inch. Complaints came in, to the effect that the bees would sometimes build comb clear past the square bars, and hence the change. The bottom-bar  $\frac{3}{4}$  inch wide seems to be a nice compromise between the extremes.

It should be stated, that these slight changes will make no confusion in frames already in use, and the extra "finger-room" at the end of the top-bar especially, will at once be appreciated.



LANGDON NON-SWARMER.

Since last year Mr. Langdon has made some slight modifications in his non swarmer; on the back are nailed cleats as shown in the cut, the purpose of which is to render it unnecessary to bore holes in the hive, and incidentally it secures better ventilation. The non-swarmer is used the same as recommended last year, with the exception that less time is allowed between the changing of the working force from one hive to the other.

## OUR NEW HIVE.

IT IS REVIEWED IN DETAIL

By Dr. C. C. Miller.

I have before me a Dovetail hive-body filled with frames with full sheets of foundation, all ready to give to the bees, the whole being the latest approved pattern at the Home of the Honey-bees. I've looked it all over, handled it all over, studied it all over, and I'd give something, Mr. Editor, to have you for a short time where I could talk it all over with you. If you come, I'll promise to handle you carefully and return you in good order. One reason why I'd rather talk than write is that, in talking, if I make some objection that has no weight, an immediate reply ends it; whereas a written opinion stands against me if it be a wrong opinion. But I'm pretty sure you'd like to know what I think of the hive, so I'll tell you what I like and dislike. I may as well say in advance that my likes very much outweigh my dislikes.

The feature from which the hive takes its name, the dovetail corner, after trying ever since Dovetail hives were made, I feel sure is an excellent thing. No other corner that I have tried has held so solidly together without the least sign of yielding.

The hive is painted, and I'm inclined to the opinion I'd rather have it without for the good of the bees. But it might be a good thing to have the corners painted.

I prefer a cleat on each end at the top as handles, but those are easily added. The larger hand-holes that you are now making render the cleats less important.

Turning to the inside, those top-bars  $1\frac{1}{2}$  by  $\frac{3}{8}$ , with the  $\frac{1}{4}$ -inch space between, are a real delight to my eyes. I think I'd be willing to stand all the disadvantages, and more too, for the sake of having those top-bars.

The V edge on the end-bars I must mention very softly, and it would be some relief if I did not have to mention them at all; for I have been very pronounced in my opposition to them, and it is only lately that I wrote you privately that you might count on undying hostility to them from the majority of bee-keepers. To be obliged now to say that there is a possibility of some good in them is humiliating. I said the bees would plump bee-glue in that angle, and they do. But your late editorial calls attention to other things that put the matter in a different light. There is no denying that, with the first form of Hoffmans, after they have been in use a year or two, the bees get so much propolis crowded between the parts that come in contact that they do not pull apart as easily as they might; and, worse than that, the increased room they take up makes it hard to take out the dummy. Your argument is, that the V edge will allow the frames to be crowded together more easily, the sharp edge cutting its way

through the propolis. I can't find any good reply to that argument. The surfaces in actual contact with the V edge measure only about an eighth as much as in the other kind, so the same force will squeeze eight times as hard on the opposing surfaces. So I am forced to admit that it is in the limit of possibilities that the V edge is an improvement.

The peculiar way in which the dummies are made, allowing just the right space between comb and dummy, I like much. I like the lightness of the dummy, but have a little fear that the end of the top-bar may break too easily.

The frames slide very easily on the folded tin support; but is there no danger that in time the wood will be cut or worn away by sliding on the tin? When the frames are crowded tight together there is only an eighth of an inch between the outside top-bar and the side of the hive. The bees will be sure to fill propolis in that one-eighth space; and, moreover, if a comb from the center of the hive is put there, that part of the comb which has sealed honey will be only an eighth of an inch from the side of the hive, and it will be thoroughly bridged with comb. True, you can leave the end-bars an eighth from the side of the hive; but spacing it thus by sight takes time, and can not be exactly done. Would it not be well to have eighth-inch blocks in the corners for the end-bars to strike against?

You do not have the frames wedged together. I believe that's ever so much better. Really, the greatest objection I have to fixed distances, as I have used them, is the difficulty of getting out the dummy. With space enough and no wedging, that difficulty will disappear.

If it were possible to have the top-bar of the dummy the same width of the boards in the dummy ( $\frac{3}{8}$ ) I should like that, for at present there is only  $\frac{1}{8}$  inch between the two top-bars; but I don't see how it can be done without making the top-bar of the dummy too weak.

Now let's take a frame out and look at it. That bead on the under side of the top-bar seems a useless thing; but when I see how the foundation is fastened against it, there seems a use for it. But what's the good of the ditch on the one side of the bead where there is no foundation? Looking closer at it I find the foundation is not fastened in the center. On one side, from the foundation to the under edge of the top-bar is  $\frac{1}{16}$  of an inch, and on the other side  $\frac{1}{8}$ . Of course, our combs must be freely interchangeable, making it often occur that two of the shallow sides will come together, or two of the deeper sides. In the one case it will make the combs  $1\frac{1}{2}$  inches from center to center, and there would be nothing so very bad about that. But in the other case the combs would be  $1\frac{1}{4}$  inches from center to center, and to that I should decidedly object. When in use, the hive before me will probably have the three differ-

ent spacings— $1\frac{1}{4}$ ,  $1\frac{3}{8}$ , and  $1\frac{1}{2}$ . Now, instead of cutting two grooves in the wood, let there be only one, so cut that the foundation will be exactly in the middle. Or, it may be better still to have a saw-kerf for the edge of the foundation to fit in loosely, then a few drops of melted wax will keep it in place till the bees fasten it. If  $\frac{1}{4}$  deep, no waxing is needed. The trouble with saw-kerfs is, that they are usually made too narrow. The foundation before me is  $\frac{1}{8}$  inch thick, and I suppose a saw-kerf to receive it should be  $\frac{3}{8}$  at least.

I suppose you have fastened the wires in the foundation by electricity. At any rate, it is an artistic piece of work, much admired by Emma, who probably takes a sort of maternal interest in it, as she was the first one who imbedded wires by means of heat.

The question arises, whether it might not be a good thing to put bottom starters in brood-frames. In the frames before me there will be a space between comb and bottom-bar which is objectionable, and means about 5 per cent less comb surface in the frame. You know that bottom starters in sections are a success, and I think they might be more successful in brood-frames on two accounts: A bottom starter of  $\frac{3}{8}$  or  $\frac{1}{2}$  inch stands up of its own accord in sections, and the thicker foundation would stand up better. Besides, in the brood-frame the bottom starter can be cut of such width or depth that the lower wire can be imbedded in it near its upper edge.

On the whole, I believe you have done a fine thing in getting up this hive, and I'm going to try it to the number of fifty, V edge and all. If I find on trial that they are not as good as I supposed, I make no promise to keep quiet.

Marengo, Ill.

[We assume, Doctor, at the outset, that, while you are apparently "on the fence" regarding some things, you are anxious to get on our side, providing you know the ground will hold up—or that we can convince you that it will. We like good company. Well, in regard to the V-edge, you seem to have a tolerable assurance that the ground is all right. We are sure you will doubt no more after you have tried those 50 hives.

About that paint. Just the other day we visited a small apiary where the owner had put in, some 9 months before, a lot of new hives. They looked as if they had been recently painted with one coat of paint, for the boards were badly checked. "But," said we, to the owner "you did not paint your hives, did you, till recently?" "No," said he; "but I am sorry now that I did not paint them at the start. They have been left out in the hot sun, exposed to the weather; and the boards—especially the covers—are warping a little askew." Let us see, Doctor; you admit it is a good policy to paint covers; then why not the rest of the hive? A whole loaf is better than half of one. A hive may stand up just as long without paint but it won't remain bee or robber tight very long.

You prefer a cleat at each end at the top, as handles. Well, you can have them. The Dovetail hive is so made that you can have



them or not, as you please. But, say; don't you think you could get used to those new hand-holes, and that you would like them fully as well for actual use, to say nothing of their neater appearance, if you were to give them a trial without the cleats?

Yes, the frames do slide very easily on the folded tin rabbet, or "support," as you call it. [Why *didn't* you say "rabbet"?] No, Doctor, there is no danger that the folded edge will cut the top-bar. Even the sharp edge that we have been using for years seems to have but little effect.

About that  $\frac{1}{8}$ -inch end play of the top-bars. All we have got to say, Doctor, is, we have *got* to have it. We do not dare to risk making a tight fit, because the varying conditions of the weather throughout the United States would be sure to make them too tight sometimes. Yes, the bees will chink in a little propolis into our nice clean sections; but neither of them can you help. So far as the top-bars are concerned, they will make no practical trouble.

No, we would have the top-bar of the dummy just a little wider than the boards, for the very reason that it gives the fingers an abutting edge to catch hold of in drawing out. We first tried the dummies with the top-bar the same width as the perpendicular sides; but it was hard to pick them out. That bead on the under side of the top-bar. Your objections look all right in theory; but in actual practice you need have no fear. You certainly will not have spacings  $1\frac{1}{4}$ ,  $1\frac{1}{2}$ ,  $1\frac{3}{4}$ . If you do not intend to wire your frames, and if you fasten the sheets of foundation to the comb-guide by the melted-wax plan, you might have the unequal spacings you refer to. But if you will refer to our catalog you will see that we recommend rolling the edge of foundation—that is, pressing it against the comb-guide; and this results in crowding the wax over so that it is almost exactly under the comb-guide itself; that is, the comb-guide and the foundation form one continuous line with the top-bar. To be sure that this is so in actual practice, I have just been out into the other room, and measured several lots of frames having foundation put in with that Daisy-Hamhaugh roller. The sheets do not vary a sixty-fourth of an inch from being out of the exact center. Then, besides, the wires themselves are threaded through holes that are spaced exactly in the center of the end-bar, in a perpendicular line.

Yes, that wiring by electricity is the only way of doing a nice job. and, to a great extent, it prevents the bees from gnawing around the wires when they have nothing else to do. By the way, Doctor, didn't we send you a battery? We have not had any report from you in regard to its workings.—Ed.]



C. M. McC., of W. Va., would like to know what to do with old moldy combs. *Ans.*—Put them in or over a strong colony of bees. They will clean them up and make them sweet in short order. If moldy and worm-eaten, throw them into the solar wax-extractor. If moldy and crooked, put them in the same place. It does not pay to fuss with any thing but straight first-class combs.

E. W. S., of Ala., asks how long burlap covers shall be kept on under cushions for outdoor wintering. *Ans.*—We usually make it a practice to keep the burlap covers on until settled warm weather, say about the middle of May with us. Sometimes we leave them on until the first of June. It is not advisable to change the burlap to enamel cloth very early in the season; in fact, we do not use enamel cloth at all nowadays with the Dovetail hive.

E. N., of Ill., asks if the bees will not store more surplus over drawn combs than over starters only, in the brood-frames. *Ans.*—No. It would rather be the other way, provided that the bees were hived on the starters, and honey was coming in with a rush at the time. If they had drawn combs below, they would pile the honey into the brood-frames, and put in the sections what remained. E. N. also asks whether Italian queens reared in a colony of black bees would not be more prolific. *Ans.*—We do not think it would make any difference.

P. W., of N. Y., writes: "Please tell me what I can put on the separators to keep the bees from fastening the honey to them. They spoil lots of boxes on the new boards." *Ans.*—This is a difficulty that practical bee-keepers find to a slight extent, but, so far as we know, not enough to make any great trouble. In your case it may be that the hive did not stand level; that the foundation was not perfectly centered in the sections, or that the sections themselves did not have wide enough openings. Any and all of these might combine to aggravate comb-attaching.

W. H. C., of Mich., asks, 1: "As I want to Italianize this season, I want to know whether it would be a good plan to introduce strange queens to colonies that have just sent out the first swarm, previously cutting queen-cells, or leave the new queen to tear them down." *Ans.*—We would always advise tearing down the queen-cells. It is true, that the queens to be introduced *may* do it; but you always run the danger of a young virgin hatching out, in which case the bees are liable to take up with their young mistress rather than with their old one, and, of course, the latter is killed. In introducing queens it is *always* safer to tear down the old cells, because, after bees get cells nicely started, they are inclined at times to lay their hopes on them so strong that, when a new queen is introduced, they carry out their original purpose, and the introduced mother is sacrificed. W. H. C. asks further: 2. Would this process prevent after-swarming? 3. If I order queens, and receive them before I need them, how may I keep them alive till I do need them? *Ans.*—2. To a certain extent. 3. You want to manage somehow so as not to receive queens before you want them. You can keep them in small nuclei, however, as explained by Mrs. Atchley on page 407 of our last issue.



Receive my instruction, and not silver; and knowledge rather than choice gold.—Prov. 8: 10.

THIS number seems to be quite footnoty—eh?

WE have just been having some cold rainy weather for four or five days. It is now clearing up, and the bright warm weather gives promise of staying with us.

MR. HUTCHINSON, in the last *Review*, says, "Silence is the wit of fools." We always supposed it was the other way; or, as another has said, "Speech is silver, and silence is golden."

WAX has been exported from the country within the past year in large quantities. So much, indeed, has gone abroad that its scarcity is being felt already in this country. At present we are well supplied.

WE have been obliged, and are now, to run night and day to keep up on orders, especially for the new polished sections. We are nearly caught up, and are only four or five days behind. The orders that are liable to be delayed are the odd-sized goods; but by the time this journal is out we hope, with our large force, to get every thing off on time.

A CORRESPONDENT writes that he has experienced great trouble from the bees attaching bits of comb to wood separators. As this kind of separators is used almost universally now, we should be glad to hear from our readers on this point. We have suggested some of the causes in the department, "Beginner's Question-Box," in another column.

FROM present indications there is a very poor prospect for California honey this season. There has not, it is said, been sufficient rainfall to guarantee even a fair crop. There is no great loss without some small gain; for eastern honey, on account of the scarcity of the western, ought to bring a good price. There is every reason to believe there will be a large crop of clover and basswood this year.

A SUBSCRIBER noticing the bees going through a backward and forward motion, or, as some have called it, the wash-board act, at the entrance, asks what it means. This has been asked several times, but no satisfactory answer has yet been given. Almost every practical bee-keeper has observed this peculiar movement, but so far we can only guess. It is generally during a time when no honey is coming in, and, apparently, the bees, for the want of

something better to do, are trying to scrub off the paint (or woody fiber, if not painted) at the mouth of the entrance.

WE are sorry to announce that *Success in Bee Culture*, a sprightly little monthly at 50 cts. a year, published at Highwood, Ct., is not a success financially, and is now discontinued. Its publisher, Mr. Burton L. Sage, will return the money on unexpired subscriptions. Mr. Sage, we are glad to know, will continue his interest in bees as formerly. The journal took so much of his time for the small return, and having other interests, he was obliged to give it up.

A CORNER in honey, owing to its scarcity, is what the California dealers are now trying to work up, says the *American Bee Journal*. We are glad if honey is regarded as enough of a staple so that enterprising dealers are trying to get better prices. Never before in the history of the honey business was there ever a general effort, in any one section, if we are correct, to establish "a corner" on our product. We feel safe in saying that bee-keepers will not object very seriously to any thing legitimate that will bring honey up to more like living prices.

WE have before us a sample of glucose that can be bought for less than 3 cts., that has none of that disagreeable brassy taste. Honey adulterated with that quality never could be detected by the taste; indeed, it might pass for good honey; but—it would not be honey; and the worst part of it is, consumers *might* pronounce it first-class honey. We shall have to give up to Bro. York, that glucose can not always be detected in honey by the taste. But happily we have chemists who are competent to deal with such stuff, else we should hesitate to write this, for fear a few would make a wrong use of it.

OF the recent discussion on the size of hives, Mr. Hutchinson has this to say:

Eight-frame hives versus ten-frame hives is being discussed in GLEANINGS in a way that reminds one of old times. Dr. Miller, R. L. Taylor, C. P. Dadant, and others, are taking a hand. It seems to me the point is just here: When the flow is early and short, as it usually is in this part of the country, the colony in an eight-frame hive gets its combs full of brood, and is ready for sections sooner than is the case with the ten-frame hive, and better results are secured. It is impossible to give a resume of the discussions, and they are too lengthy to copy all of them. It seems to be one of those cases in which you ought to be a subscriber to GLEANINGS.

WE have recently been out among some of the farmer bee-keepers on a bicycle tour, in our vicinity; and, even despite the fact that they are almost, as it were, under the shadow of the Home of the Honey-bees, their frames of the loose unspaced type are spaced all the way from 1½ inches to 1¾ inches; and such combs!



They are crooked, bulged, gnawed down, and disfigured here and there with extra pieces of comb as the result of too wide spacing. Over against these, in pleasing contrast, *in the same apiary*, are the self-spacing or Hoffman frames, all, of course, properly spaced. Whatever we may say regarding their special advantages to the expert bee-keeper, they are especially adapted to the beginner or farmer bee-keeper. There was one apiary visited where the loose frames were properly spaced; but it is rare that such is seen.

WE have just received the Second Annual Report of the Illinois State Bee-keepers' Association. It is neatly bound in cloth, and contains 260 pages. Half is confined to the report of the State Bee-keepers' Association; the other half to a report of the North American Bee-keepers' Association, held in Chicago October last. A large amount of valuable matter has been collated. Portraits, also, of some of the most prominent bee-keepers, as well as World's Fair views of honey exhibits and apiarian supplies, grace its pages. The Illinois Bee-keepers' Association is in a most flourishing condition. It has an appropriation of \$500 annually from the State, to enable it to get out its reports; and how well the work is done is evidenced by the one before us. We believe it is sent only to members. Any one else may obtain paper-bound copies by sending 8 cts. to the secretary, Jas. A. Stone, Bradfordton, Ill.

#### SPRAYING TREES WHILE IN BLOOM.

IN some of the agricultural papers it is still advised to spray trees while in full bloom. We might reply to these, but in a certain sense they would consider us a prejudiced authority and therefore hang to the "same opinion still." The better way is for a subscriber to such paper, also a bee-keeper, to send a short courteous reply, calling their attention to the fact that spraying during full bloom not only kills bees but is premature; that the best authorities, including the experiment stations, advise that the spraying be done *after* the petals fall; for it is at that time the injurious insects get in their bad work. The point is here: An editor will accept a correction from a subscriber more readily than from a bee-journal. It may be a little late this season to follow up such cases; but let it be done next season, and don't assume that the "other fellow" will do it if you don't.

#### IS THE CLOVER MIDGE GOING TO HARM BEE-KEEPERS?

Most of you have seen items in the papers, to the effect that an insect is doing serious damage to the farmers by destroying the crop of clover hay. If I am correct, however, the latest reports of our experiment stations tell us that, right up to the present date, the damage seems to be much less than was anticipated. The

enemies of the clover midge were on hand promptly, as is usually the case when most enemies of this kind threaten to prove serious, and, together with the cold rains that have prevailed for the past ten days, the clover now promises fairly well. I believe that, as a rule, this clover midge seldom troubles white clover very much; therefore bee-keepers have little to fear in that direction. With Terry's rotation, and his management of clover, there is but little to fear at any season. And this illustrates again an important fact. It is the slothful, slipshod farmer—the one who is always behind the times, and does not take the agricultural papers, nor keep posted in regard to our experiment stations and their work; it is mainly farmers of this kind who suffer loss from insect-enemies. A full account of how Terry circumvents the clover midge is given in his large book, "Our Farming." A. I. R.

#### CONTENTS OF GLEANINGS; GOOD ADVICE.

BRO. HASTY, in speaking of the contents of GLEANINGS, has this to say:

The course of development which this excellent journal has been taking of late is quite plain to be seen. It is, to utilize to the utmost the abilities of a few excellent writers—and overboard into the deep, deep sea with the "let us hear from *all* the brethren" idea. In theory this looks to be wrong; in practice it makes the readable and instructive paper. Only one man out of a thousand can write out what he knows. Pretty much of the rest seem foreordained to write a lot of stuff of no use to any mortal, and leave out the valuable things which they could supply if they would. Strange as this is, it is not unique. Let a thousand men go to the World's Fair, and how many of the thousand can give the loved ones at home even a tolerable account of what they have seen? And writing is a much rarer gift than talking. Nearly every bee-man in a five-minutes' talk will tell things that would be worthy matter for GLEANINGS if properly dished up. Not one of those things will he tell if he sits down to write, but leave them all out, and write something else. Queer, isn't it? Awfully we need a school, or class, or something, to teach the brethren how to write. "What can the man do that cometh after the king?" Don't go after the king then. Don't pour out your crude and imperfect thoughts and notions on a subject which some master hand has just treated nobly well. "And if I chance to fall below Demosthenes and Cicero"—to the dogs with Demosthenes and Cicero! Desire to have one's article sound like "literature" has killed off more bee-writers than all other murrains combined. Have something to say, and say it in your own earnest way. But don't be so silly as to despise literary merit—look out for literary faults; divorce them as fast as possible; and build up a clear, strong, individual style. Literary style is an excellent thing; only don't expect it to pass current without some facts and ideas—don't expect the clothes to walk without a man inside.

As a general thing, old writers have the most practical ideas; but, nevertheless, we are constantly on the watch for something good from any one.

## OUR HOMES.

But seek ye first the kingdom of God, and his righteousness, and all these things shall be added unto you.—MATT. 6:33.

The conviction forces itself upon me, that in these Home Papers I ought at least to *recognize* the difficulties and troubles that are visiting our United States of America just at the present time. In fact, I believe it is the Holy Spirit that admonishes me that I can not consistently evade or avoid the problems that are confronting so many just now. At the same time, I recognize it is a difficult, and, I might almost say, dangerous, thing, for spiritual teachers or spiritual advisers to undertake to say what men should do or should not do during these times, for, in fact, *more* than human wisdom seems to be needed; and my prayer in thinking of this talk to you to-day has been, "O Lord, help, and give me wisdom that I have not of myself, and that is not human wisdom." In thinking of this, the old familiar text comes up to me again. I have used it so many times that I almost hesitate to use it once more; but yet I am sure that humanity has not yet begun to explore the depths of wisdom contained in the few simple words that compose it—the few simple words spoken by our Lord Jesus Christ. When I undertake to talk on this subject I recognize how easy it is to find fault, and to say that this, that, and the other is the cause of all our trouble; and I am impressed just now that no *one* thing is the sole cause of all our trouble unless that one thing be *sin* in the human heart; and if we put it that way, we are *all* to blame, for God knows we are *all* sinners; and this being true, can we do better than to use that old, old prayer, "Lord, have mercy on me, a sinner?"

You will remember that, before these financial and social troubles came upon us, there have come up at different times many innovations and new things in society. The millionaire development is of comparatively recent date. The sudden wealth that demoralized society and individuals commenced, perhaps, with the gold excitement in California. I can remember it well. Then the oil business of Pennsylvania and other States came on the stage, and men got rich suddenly without corresponding effort and years of labor. And right upon the heels of the oil business, or, perhaps, almost at the same time, came our civil war; and it is a little sad to think that men secured colossal *fortunes* during the war, but it is indeed so. Our best and wisest men tried to frame laws to make provision for the unsettled and demoralized conditions of society; but with the best intentions in the world, on the part of our law-makers, sharpers, and those greedy for gain, caught sight of imperfections or loopholes in these laws, and thus secured fabulous wealth. It got to be a fashion to get rich without hard work; and, oh dear me! I am afraid it is even *now* the fashion to do the same thing; and not only that, but to look down upon people who are depending upon their hard day's work to get to be comfortably off. All these events that I have spoken of seemed to prepare the way for the general dissemination of a sort of gambling mania. Let me illustrate:

Mrs. Root went into a store yesterday. While she was waiting a little to speak with one of the proprietors, a young clerk, with perhaps the best intentions in the world, undertook to entertain her with an account of their gift enterprise. Perhaps I have not got the facts exactly, but it does not matter. Something very much like it is going on, I presume, at this very moment in every town and city of the United States. So

many beans, or grains of corn or some other seeds, are put into a bottle, and the customer who guesses nearest the exact number in the bottle is to have—a "house and lot." It seems that long practice and experience in this matter of guessing the number of seeds in a bottle has been worked down so fine that people go and get a bottle of the same size, and fill it with corn. Then they can guess pretty nearly, so as to get the house and lot. This special bottle in question, however, was of such peculiar form and fashion that no one could get another one like it. So this time the thing was going to be fair and honest(?), or more so than similar schemes elsewhere—as if gambling and lotteries and all things of that ilk could *ever* be fair and honest in *any* sense of the word! Now, any one who knows Mrs. Root at all would recognize that she did not want a house and lot, and would not have it under any circumstances unless it were bought and paid for. Do you suggest that she might give it to some poor woman who did want it? Well, my friend, if this would be any better, it is only gambling to help the poor, after all. Such work is certainly in no sense or manner "seeking the kingdom of God and his righteousness." You need not suggest that Mrs. Root has so many houses and lots already that she does not want any more, for she has none at all except the one we all occupy. I have frequently heard her say she would *like* some little houses on suitable lots, to be rented at a low price to poor women; but she has never yet, I am sure, wanted one as a reward for guessing the number of seeds in a bottle.

Now the question arises, How often do merchants and others get any sort of rebuke for this sort of lottery or gambling business? How many Christian people, members of churches, are ready to say, when the thing is presented to them, "No, no, my friend, I do not get things in that way, and I do not *want* them that way. I profess to be a Christian, and I could not conscientiously take any thing without rendering some sort of fair equivalent?"

Even though times are hard—even though thousands of fathers and mothers complain that they can scarcely find money to purchase the bare necessities of life—notwithstanding all this, lotteries and gift enterprises, and things of that sort, grow and thrive; and it is the poor and needy people who support them. The managers of the Louisiana Lottery Co. have offered *millions*, as you know, for the privilege of working certain territory. Yes, and the saddest part of it is, by some hook or crook they manage to make their millions open the way to work said territory. I am told everywhere it is true. I saw it plainly indicated all over the great city of New Orleans, that it is the *poor* and *needy*, as a rule, who support this great Louisiana Lottery. The great masses—I was going to say ignorant masses—pinch themselves in the way of food and clothing to get hold of money for this kind of gambling; and not only this, but even members of churches, and fathers of families who have their little farms *heavily mortgaged*, also scrape up money to invest, if not in the Louisiana Lottery, in some other gambling enterprise, with the vain hope that they may *thus* get money to pay off the mortgage, or something of that sort. I am afraid the thing is growing and increasing. Millions set the example, or, at least, they are hired to *pretend* they do; and all the way down, people follow in their wake because they have no conscientious scruples against taking money or property without rendering some sort of equivalent. I have told you of a scene I witnessed in San Diego, Cal. Real-estate speculation had become a gambling craze. Mechan-



ies who were receiving good wages threw down their tools, and declared with oaths that they were not going to work for a living when people all around them were getting rich, "hand over hand," *without* work.

In a line with this gambling mania is the love of excitement or show, or something *new*. During the beautiful days of the present spring, again and again have great crowds gathered near our public square to listen to certain open-air concerts. They were given in a properly rigged-out wagon; and after the concert some sort of patent medicine was sold. When people are needy, and out of employment, and not at all *stuck*, why should they buy medicines under such circumstances? I can not tell. But I am told that the man boasted of how many hundreds of dollars he took from our town. He had excellent singers; yes, I admit they were some of the finest-trained singers I ever heard. He must have paid them considerable sums of money to travel with him from town to town. The music—that is, the melody and their trained voices—was beautiful to hear; but when I stopped in passing, to catch the words, what do you suppose they were? Was there a single gospel hymn? Not one. Was the sentiment of the songs—any one of them—any thing that could elevate, and ennoble? Was there any thought expressed of "the kingdom of God and his righteousness"? Quite the contrary. They were selected and fashioned with the sole view of drawing the people and working them up to a pitch where the manager could get their money. The crowd was not composed of men and boys only. There were women and girls who left their homes and gathered in the streets. Those who could not well go out on the street filled the doors and windows. It was a *free* concert, you know. Ah! but you forget, friends. The medicine man received a bigger price of admission from every one who stood around him than people pay to go to our best concerts. Some paid a big price. Others did not pay any thing. Our boy Huber has always been a very obedient child. I have scarcely ever known him to stay out nights—that is, without permission. One moonlight evening he went to pay his cousins a visit. As he did not get back until it was long after his accustomed time, I took my wheel and started after him, wondering mentally what influence could possibly prevail upon the boy to break his lifelong record of obedience and prompt regularity. When I got in sight of the square I saw the torch-lights over the wagon, and heard a man singing. Huber stood there in the crowd, right up in front, with mouth and ears and eyes wide open, taking in the whole program—good, bad, and indifferent. Some of you may say right here, "Mr. Root, you are too particular; you are too strict and puritanical. You are not up with the times." Well, come to think of it I guess I am not up with the times—especially the sort of times where thousands upon thousands won't work, or, if you choose, can't work; the times when our police and other officers of the law are (at times) entirely inadequate to have the laws enforced. I do not want to be up with such times. Please let me add, however, that I did not scold Huber a bit. The surroundings were more than we could expect a live "boy" to withstand. I laughed and he laughed, to think he had been captured by a street mountebank. He did not pay out any money. He has money to do what he pleases with, and there is plenty more he could easily get hold of if he were so disposed. But the boy, thank God, is much like his mother, and a whole "house and lot" not his own would be no temptation to him at all.

It is not only the medicine man who takes

away the people's money, but sharpers who sell half-dollars for 25 cts., and who sell goods at auction, and then give the money back with the goods. An offer of "something for nothing" usually finds many customers. If people were seeking, instead of these things I have mentioned, the kingdom of God and his righteousness, how quickly these sharpers and these great lottery companies would be starved out of business! Yes, if even *Christian* people—members of churches—if they alone, without the rest of the world, could not be *tempted* by offers of "something for nothing," I fear these fellows would have a terribly hard time in making expenses.

Just a word about patent medicines in general. The proprietors of these things get rich. I have seen their princely residences in California. You can find them scattered all over our land. Many of them are millionaires. They get a dollar a bottle for some compound that does not cost them a nickel, bottle and all. Sometimes they boast of it. A certain class of people say that it is all right because they have to pay such enormous prices for advertising. But it is not all right. It is not seeking the kingdom of God, and his righteousness. It is not right to charge your neighbor or anybody else a dollar for what costs you only five or ten cents. It may be legitimate trade and traffic in the eyes of the law, but it is not in the sight of God, and it brings its own reward.

Perhaps in my former writings I have been inclined to ascribe the troubles that are upon us too much to the fact that so many people were lazy or indifferent. If this were true, the burden of the wrong would rest upon the willfully stupid and indifferent class. I think I begin to see my mistake. It rests upon all of us. We are all forgetting the spirit of our text. We are letting *self* take a large part of our thoughts; and the rest of the world—well, we are too much inclined to let *them* take care of *themselves*. And this sort of doctrine, carried out, means "everybody for himself." A vehement young friend in our county jail said last Sunday, "There ain't a lawyer anywhere around who wouldn't tell a lie for a dollar." The above is rather rough on our legal friends, I admit, and I remonstrated with the boy, and got him to take back part of it. I also suggested that people might think he was judging others by himself. Now, I do not believe there are many people who will tell a lie for a dollar; but I am afraid there are quite a few who would *keep still* for a dollar—yes, even if something were going on that they know ought to be stopped. And right here comes in another cause of our troubles. We are having more difficulty at the present time in enforcing law than perhaps at any other time in the history of our country. What is the reason? Well, one reason is, there is not enough public sentiment right back of and close up to our officers to make it easy to enforce the laws. There is no use in blaming our police; there is no use in scoring our lawyers, nor in finding fault with judges, while we are heedless and indifferent, or so intent on our own affairs (buying lottery-tickets, for instance) that we have no time to look after our neighborhood and our nation. A case of intemperance recently came to my notice. I was a good deal disgusted to find that the probability was, nothing could be done to the offenders. The evidence, I was told, was not sufficiently strong and clear. First, the witnesses would probably not testify. Second, if before a jury, the probabilities would be that at least a part of the jury would be more or less given to intemperance, so they would have sympathy with the transgressors. Furthermore, a good many of our judges, so it was said,

were disposed, in cases of this kind, to make the way of the "transgressor" *easy*, instead of verifying the Biblical proverb, "The way of the transgressor is hard."

Now, you can tell whether the above state of affairs is true in your community or not. If it is true, then it indicates a general lack all along the line. Instead of seeking the kingdom of God and his righteousness, we as a people (*all of us*) are more or less guilty, because we are seeking selfishness and *ease*. One judge, I am told, suggested to some one who was trying to convict a saloon-keeper, something like this:

"Look here, my friend, some day *you* may be a poor man, and in trouble." The reply was, "Very likely; but if I am, I shall not expect the *courts of law* of our country to do their best to get me out of 'troubles' of *this kind*." One who is seeking the kingdom of God, and his righteousness, needs to be more or less aggressive. He must hurt people's feelings now and then, and he must stand up for the right. Our country needs men like Joshua; and I fear just now there are altogether too many men settling back like Joshua's ten companions, and deciding that the giants of evil are too *many* and too *great*.

Oh! who is there among us, the true and the tried—Who'll stand by his colors—who's on the Lord's side?

### DOCTORING WITHOUT MEDICINE.

#### HOW FAR MAY OUR DAILY FOOD TAKE THE PLACE OF MEDICINE?

You know how strongly I have recommended the use of milk—especially using that instead of tea and coffee, and much more instead of beer and other intoxicating liquors. Well, I am not going to take back any of it; but I think that, perhaps, I should mention that the continued use of milk in large quantities day after day may not always be advisable. A few weeks ago I was having frequent bilious attacks with my old sick headache, and an exceedingly bad taste in my mouth. In fact, during the middle of these warm days the taste seemed to be almost bitter. Rinsing my mouth with water gave temporary relief; but drinking much water—even soft water from a good cistern—seemed, if any thing, to aggravate the trouble after a little. While riding on the wheel so as to perspire freely and drink copiously, this has mostly disappeared. But I could not afford to take the time to ride thirty or forty miles *every day*. I went to the dentist's and had him examine my mouth to see if there could be any cavities that helped to make the bad taste. He said there was none; but he told me he was aware that a continued use of milk was liable to impart a bad taste to the mouth, etc. I stopped it, and found the disagreeable symptoms almost wholly gone. Is it not something like the principle of the rotation of crops on the farm? Nature seems to call for a "rotation of crops" in diet as well as in farming. Come to think of it, I have several times had an experience quite like that above. After drinking water in place of milk for a week or two the milk seems to answer all right again for quite a long period.

The subject of health and diet comes up frequently in our home, and we are all interested in the subject of health. Pineapples have been quite cheap recently, and one of the girls remarked in my hearing that this fruit unquestionably possessed medical qualities. Well, three or four days ago, even though I had left off the use of milk, I had an exceedingly severe bilious attack. In fact, it gave me such a headache that I could hardly get about to my

work that seems to need my presence almost everywhere just now. I first took a good nap. This helped the matter, but the help was of but short duration. Then I tried the internal water cure. This did more good, but the effect of it did not last very long, and about the time we have our early supper (half-past four) I was feeling so miserable that I felt I should have to go to bed unless I got relief. I was thinking about supper; but my feelings revolted at every thing Mrs. Root suggested. When I happened, however, to think of what had been said about pineapples, nature seemed to say at once, "Oh, yes! that will be all right. Give us a good lot of pineapple." Now, I am very much averse to medicines of any sort; but if you can call a pineapple a "medicine" it seems to me it would be quite an improvement over the drugstore kind. Mrs. Root sliced it up, put on a judicious amount of sugar, and at my first taste I decided that it just "hit the spot." I ate nearly the whole of a good-sized one, with excellent relish, accompanied with a slice or two of very nice bread and butter. The result was somewhat astonishing to me. The bad taste in my mouth disappeared at once. Before I had finished my meal I felt refreshed all over; the headache gradually disappeared, and the unpleasant feeling that dyspeptics understand so well was nearly gone. Mrs. Root and the children suggested that I always overdid things by making haste to conclude, as a universal rule, that "when a little is good, more is better." But it did not prove so in this case. I slept soundly, and my sleep was refreshing. In the morning I rejoiced to feel that I was sound, and ready for business. In the afternoon the same symptoms began to be present; but another pineapple for supper did the business. I remember of thinking, just before I ate the first one, that, if the whole science of medicine furnished any thing that would make me sound and well, say within half an hour, or any thing that would satisfy that intense craving and thirst, it would give me a faith in medicine that I had never had before. Well, relief came as I have told you—or, perhaps I might say, my prayer for help and wisdom has been fully answered. But it did not come in the line of doctors' stuffs. It did not come in the line of any patent medicine at a dollar a bottle or any other price. It came simply in the line of a delicious fruit, to be found near almost all of our homes. Mrs. Root suggested that I should go to a doctor and tell him my symptoms, for she was sure he would give me some medicine that would bring relief. Well, I have not much doubt he would have done so. He might have given me some sort of physic that would have cleansed the whole digestive apparatus of every thing—good, bad, and indifferent. But the same cause would have produced the same effect, probably, soon after. Perhaps these remarks are a little rough on our medical brethren; but I guess the most intelligent of them would agree with me. If you can get yourself in good trim by change of diet, it is better than to take physic. Is not that so? The good men and women of the world, I am sure, will agree with me. Some may object by saying that it is not everybody who can afford a pineapple for a meal. Hold on, friends. The pineapple costs 15 cts. You can not get a good meal anywhere for less than 25 cts. If everybody can not afford a pineapple, they nearly all *think* they can afford to go to a doctor when sick. Going to a doctor costs from \$1.00 to \$1.50, \$2.00 or even \$2.50. Yes, we often pay \$2.50 for a very short consultation and prescription, and in a good many cases we have to buy our medicine besides that. I am not finding fault, for that is all right. Some of our physicians that doctor with "little pills" (I do



not mean to complain of them either, mind you) charge only 50 cts. if you pay cash down; and that is very reasonable. But the pineapple costs only 15 cts., instead of 50. Now, this discovery of mine is by no means new. The whole wide world, almost, unites in recommending lemons for biliousness. Well, I used to use a good many lemons; but they did not seem to work nicely in a good many cases—at least, not when I am living on milk largely. The acid seems to be rather harsh. Nature had had lemons until they had got to be an old story.

Do you say that we can not all be so notional about what we eat? Perhaps not; but any physician will tell you that a change of air, a change of scene, or even a change of diet, often does wonders. A near relative of mine was once near the point of death, and I believe she was mostly given up by physicians. After a little, peaches were ripe, and they commenced squeezing the juice out of a few nice ripe ones into a teaspoon, and feeding it to the invalid. She called for it almost continually, and the life-giving nectar built her right up.

It is almost strawberry time. About the season that strawberries come, they are welcomed by thousands. Thank God, too, that, with the improvements and energy given to the strawberry industry, we are able to *feed the world* with strawberries; that is, we generally succeed in feeding them until the biggest part of them say enough. I have told you something about how I always get well and strong during strawberry time. The strawberry seems to furnish a sort of antidote, or neutralizer, for this bitter element in milk (I wonder if the latter expression is either *sense* or *science*), and therefore I can eat strawberries and drink milk to my heart's content, and grow strong and happy on them. Now, lemons are not just the thing to go with a milk diet; but I know strawberries are—at least, in my case; and my impression is, also, that pineapples would answer safely in the same way.

By the way, some time ago I saw pineapple juice advertised as a medicine. They said it was bottled up where pineapples were grown, and was furnished at a comparatively low price because it was made from fruit that could not well be marketed. Ever since I read that advertisement I have a sort of longing for pineapple cider. I think that is what they call it. I do not like the word "cider," however, because it suggests a fermented beverage; and I am sure my health at least—physical health as well as spiritual—demands the pure fresh juice of the fruits. I am told that grape juice, when properly canned up, just as it is expressed from the ripe fruit, makes a most healthful and nourishing beverage. Now, is there not an opening right here for a big industry in furnishing sick people with a wholesome and cheap medicine in the shape of bottled fruit juices? By the way, if GLEANINGS happens to go into a locality where pineapples grow, will somebody please give some light on this subject? Who can furnish us pineapples and pineapple juice right straight from the producer?

#### NOTICE TO ILLINOIS BEE-KEEPERS.

The Second Annual Report of the Illinois Bee-keepers' Association is out. Any one who desire a paper-bound copy can have it by forwarding to the secretary 8 cts. to pay postage and wrapping. We shall probably have cloth-bound copies enough to furnish all who may become members of the Association, at any time during the year. None but members are participants in the statistical report gathered during the honey season (at intervals).

Bradfordton, Ill., May 15. JAS. A. STONE.



We have to-day, May 21, picked our first quart of strawberries from the open fields. Of course, they came from Michel's Early. I think I shall continue to grow at least a row or two of Michel's Early, no matter if a great deal of fault is found with it, so long as it continues to furnish us ripe berries before any other variety. We have a dozen plants of the new Rio, but shall not be able to test them fully until another season. The Parker Earle, at present writing, is about the handsomest grower of any thing in the strawberry line. The foliage is a beautiful peculiar shade of green, and the leaves seem to be perfect; and I have never seen any berry blossom more fully than the Parker Earle. The only reason why we do not give it the preference over all others for a fertilizer is because it is exceedingly late. If used together with Michel's Early or some other equally early plant, it would fill the bill nicely; but we hardly wish to be obliged to plant two kinds of fertilizing plants with our imperfect-blossoming varieties.

#### SPRAYING IN A NUTSHELL.

So many questions are being continually asked in regard to spraying mixtures, that, even though it is a little late in the season, I have thought best to copy the following from a recent bulletin from the Ohio Experiment Station:

The following preventions and remedies have been thoroughly tested, and found to be effective in controlling the insects and diseases named, providing directions are followed:

1. Bordeaux mixture—Copper sulphate (blue vitriol), 4 pounds; quicklime, 4 pounds; water, 40 gallons. Put the copper sulphate into a cloth sack and suspend in a bucket of water, as it will dissolve more readily than if put directly into the water. Slake the lime and make a milk of lime, which pour into the copper-sulphate solution, after which add the requisite quantity of water.
2. Copper carbonate—Copper carbonate, 6 ounces; ammonia, 2 quarts; water, 40 gallons. Dissolve the copper carbonate in the ammonia, using sufficient only of the latter to effect solution (ammonia varies in strength, hence the exact quantity required can not be stated), after which dilute.
3. Potassium sulphide (liver of sulphur)—1 ounce dissolved in 4 gallons of water.
4. Paris green or London purple—4 ounces dissolved in 40 gallons of water.
5. White hellebore powder—1 ounce dissolved in 3 gallons of water.
6. Pyrethrum or buhach—1 ounce dissolved in 3 gallons of water.
7. Corrosive sublimate—2 ounces dissolved in 15 gallons of water.
8. Kerosene emulsion—Dissolve  $\frac{1}{4}$  pound hard soap in 2 quarts hot water; add white hot 1 pint of kerosene and mix with a pump; dilute with 5 gallons of water.

For apple-scab, which injures both fruit and foliage, use No. 1, making the first application as the buds are opening, the second just before the time of blooming, the third as soon as the blossoms fall, and the fourth a week or ten days later. To kill the apple-worms, use No. 4 in combination with No. 1 for the third and fourth spraying.

Pear and quince trees should be treated in the same manner. This prevents premature leaf-dropping, scabby fruit, and the work of insects.

For plums and cherries, use No. 1 and No. 4 combined, making four applications, beginning as soon as the blossoms fall, and continuing at intervals of one week or ten days. This prevents premature leaf-dropping, also the work of the curculio. Where a few trees are isolated, the difficulty in combatting the curculio is greater; hence the spraying should be more frequent; in some cases double the amount may be required.

For grapes, use No. 1, beginning when the buds

are opening, making four applications; and after the grapes are half grown, substitute No. 2 for No. 1, and apply two or three times until the grapes are nearly ripe.

For currants and gooseberries, use No. 3 to prevent mildew of the foliage, and No. 5 to destroy the worms.

For cabbage-worms, use No. 6.

For potato-blight and the Colorado beetle, use No. 1 and No. 4 combined, making the first application when the plants are not more than six inches high, and continuing at intervals of ten days or two weeks, until the tops are nearly full grown. Not less than five sprayings should be made during the season.

To prevent the potato-scurf, soak the seed one hour in No. 7.

For plant-lice use No. 8, beginning before the lice become very numerous.

For rose mildew, use No. 1 or No. 3, and for slugs No. 5.

Numbers 1 and 4 together are used, perhaps, more than any other. Instead of measuring out 40 gallons of water we simply take a kerosene-oil barrel which holds between 40 and 50 gallons. Of course, 50 gallons would answer as well, practically, as 40. The Paris green or London purple is dissolved in a little water, in the usual way, and then added to the barrelful of Bordeaux mixture. For cabbage-worms, for the currant and gooseberry worm, and even for the Colorado beetle, in gardens, I think I would use No. 6; and when you are in a hurry, or only a little is needed, a little of the dry pyrethrum powder, put on with any small powder-bellows, seems to go a good deal further in killing these destroyers than any thing else I ever got hold of. The pyrethrum, however, should be fresh, and kept in an air-tight can or bottle. Either the hellebore powder we have been getting was not of full strength, or else the pyrethrum goes a great way further than hellebore.

#### WOODEN SASHES TO TAKE THE PLACE OF SHUTTERS.

I saw in a late GLEANINGS your quandary about not having sashes enough to protect your hardy cabbage-plants from which you had taken the sash. Here our truckers carry their cabbage-plants in frames, and in place of sash use battened boards the size of sash. In very cold weather they are down; but in any kind of ordinary weather they are raised and propped up quite high during the day. Of course, they face the south. They get the full benefit of the sun while the battened boards protect from the north. How this would do in your latitude for all winter, experiment alone could tell. I think the risk would be too great. My object in telling you of this is to suggest the idea of providing a lot of battens to supply the place of sash when removed to other frames. They are cheaper than sash, no glass to break, and readily stored away when not in use.

Pawling, Pa., May 8. REV. J. JANEWAY.

[Friend J., we have used shutters in place of sashes quite a good deal; and for temporary protection they answer just as well. They are a good deal lighter, and sustain no damage from breakage, as you say. For raising sweet-potato plants, I think shutters answer every purpose. Where we have long spells of cold weather, however, in our locality, the plants are liable to be damaged unless great pains are taken to give them air by raising the shutters. In fact, I have had plants killed under shutters where they were all right in the same bed covered with glass, both shutters and glass receiving the same handling. Notwithstanding this, however, we find 40 or 50 shutters very convenient indeed; but they need to be absolutely tight and complete, or else they do not protect from frost properly. It has been quite a study

for me at different times to decide how best to have them made, and I have finally decided on  $\frac{1}{4}$ -inch matched pine lumber, having three battens—one near each end and one in the middle, the battens also being  $\frac{1}{4}$  inch, and these should be very securely fastened, either by screws or clinch-nails. In transplanting during hot dry weather, they serve an excellent purpose for covering the plants until they have formed sufficient root to bear the direct rays of the sun.—Ed.]

#### WATER-CRESS AND ARTESIAN WELLS.

Water-cress grows in the ditch running from my artesian well. I could get a mess of it at any time during the winter; and I suppose if it had been covered with sash there would have been plenty of it. So far I have found no sale for it at the stores. J. A. GREEN.

Ottawa, Ill., May 5.

[Very good, Friend Green; and this is another valuable feature connected with artesian wells. By the way, I have an artesian well down on the creek bottom, but it rises only about a foot and a half above the normal water-level of the creek; that is, it overflows an iron pipe about that height. If I put on more pipe and raise it very much higher, it stops running. The trouble with my artesian well for water-cress is, when we have a big rain the creek rises away above the iron pipe, and washes away the water-cress and my other improvements. I think that, if your cress were properly introduced in the large towns, there would be a steady and profitable demand for it.—Ed.]

#### WHAT VARIETY OF STRAWBERRIES SHALL WE USE FOR A FERTILIZER?

In addition to what comes from our Experiment Station, on page 401, we have the following:

We have long since discarded the Jessie on account of its shy bearing. I would advise the Cumberland as far better, in my experience. Of the new sorts, I am trying the Lovett, which promises to be even more fruitful than the Cumberland. E. M. RUECHLY.

Greenville, O., May 11.

The Governor Hoard is, in my opinion, far superior. The stamens in it are better developed than in the Jessie. The growth of it is not surpassed by any other kind, it being of much more vigorous growth than the Jessie. The latter is always of irregular growth; too many dwarfed plants in the best of land and with perfect attention. The Gov. Hoard is one of the earliest to commence blooming, and one of the last to stop. I have to-day a dozen or more kinds, with ripe fruit, and have a fine selection of strawberries, and have but one kind with more bloom than the Gov. Hoard; viz., E. P. Roe. I have just looked through the whole of them (several acres). It has more blossoms than any other that I have ever fruited, and comes nearer being a perfect fertilizer. Heretofore I have generally planted 2 rows of staminate and 4 of pistillate. In future I will try one Gov. Hoard and 4 pistillate. I am satisfied that all pistillates will be well fertilized thus. Please do not recommend Michel's Early for any purpose, as it is fit only to make fine large crowns and runners. The Gov. Hoard will fruit the earliest and latest pistillates.

Design, Va., May 5.

R. J. JONES.

#### STRAWBERRIES BY THE CARLOAD.

Tell A. 1. that this town, Dighton, produces enough strawberries to have a special train, every night, in the picking season, and some-



times we load ten cars, one day's picking, for the Boston market.

Hortonville, Mass., May 4.

A. C. CASE.

#### RAISING RHUBARB, OR PIE-PLANT, WITHOUT CULTIVATION.

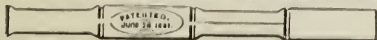
You can raise rhubarb as you say, simply by mulching for five or six years; then it begins to grow spindling and small. The best way to get new is to divide up the old roots to one or two eyes, and set out in a new place in sandy soil; at least, this has been our experience, and no doubt it would be yours.

Bowling Green, O.

M. C. DIMICK.

## Do Not Order

Until you have written us for prices on the "Boss" One-Piece Section.



Also D. T. Hives, Shipping-crates, and other supplies.

We have just completed a large addition to our factory, which doubles our floor-room, and therefore we are in better shape than ever to fill orders on short notice. Write for price list.

J. FORNCROOK & CO.,

Watertown, Wis., Jan. 1, 1894.

1-3-51fd

**BIG DISCOUNT** on Foundation and Sections. This foundation, 50c per lb.; brood, 40c. No. 1 sections, \$2.75 per M. Every thing cheap. Price list free. 7-17eol **E. H. TRUMPER, BANKERS, MICH.**

## GOLDEN ITALIANS.

If you want bees that are large, beautiful, very gentle, and great honey-gatherers, try my Golden Italians. They are pronounced very fine by W. Z. Hutchinson and many others. Satisfaction guaranteed. One untested queen, 80 cts.; three for \$2.00. One warranted queen, \$1.00; three for \$2.50. Tested queens, \$1.50 each. Selected tested queens, \$2.00 each. C. M. HICKS, Hicksville, Wash. Co., Md.

In responding to this advertisement mention GLEANINGS.

## OTTUMWA BEE-HIVE FACTORY.

Bee-keepers, look to your interests. Every thing in the line of bee-supplies constantly on hand. Price list free. **GREGORY BROS. & SON,** Ottumwa, Ia. South side. 1-23d

## VANDERVORT COMB-FOUNDATION MILLS.

Send for samples and reduced price list.

17fd **JNO. VANDERVORT, Laceyville, Pa.**

## HURRAH! 1884 to 1894

Has shown me the best bee for our Northern climate. Give me the dark Italians for wintering, for honey, and money. Large, hardy, and industrious. Untested, dark or yellow, \$1.00 each. Tested, \$1.50. Send for price list. **MRS. OLIVER COLE, Sherburne, Chenango Valley Apiary. Chenango Co., N. Y.**

## WARRANTED QUEENS.

Why buy untested queens and take your own risk of pure mating, when I warrant every one of my queens to be purely mated? Look over the ads. and see how few dare do this. Warranted Golden Italian queen, \$1.00; six for \$5.00, ready about May 1st. Safe arrival and satisfaction guaranteed.

**S. F. TREGO, Swedona, Illinois.**

In responding to this advertisement mention GLEANINGS.

## DID YOU KNOW

That I have the LARGEST STOCK of

## BEE-KEEPERS' SUPPLIES

IN NEW ENGLAND?

Consisting of Dovetailed, Simplicity, and other styles of Hives. My brand of XX white thin Foundation, and Polished one-piece Sections, are the nearest on the market.

A full line of everything needed in the apiary at prices to suit the times.

BEE, QUEENS, and NUCLEUS COLONIES of my old reliable strain, at prices way down.

Send for 34th Annual Catalogue before you buy your stock, remembering the best is always the cheapest.

Address 41f

**W. W. CARY,**  
COLRAIN, FRANKLIN CO., MASS.

## World's Fair Medal

Awarded my Foundation. Send for free samples. Dealers, write for wholesale prices. Root's new Polished Sections and other goods at his prices. Free Illustrated Price List of every thing needed in the apiary. **M. H. Hunt.** Bell Branch, Mich.

**TESTED ITALIAN QUEENS,** \$1.00 each; ed, \$1.50; untested, 45 cts. Two-frame nucleus, with tested queen, \$2.00; with untested queen, \$1.50. Queens ready April 1.

**Stewart & Cooper, Quebec, Tenn.**

## Bee-keepers' Guide.

New edition, just out. This is conceded to be the fullest, most scientific, and one of the best of our American bee-books. Every bee-keeper should have one of the late editions. Price, by mail, \$1.25. Liberal discount to the trade.

**A. J. COOK, Claremont, Cal.**

## Golden Wyandottes.

No better birds in America. Cockerel, \$5.00. Trio, \$7.00. Eggs, \$2.00 per setting. **E. D. Keeney, Arcene, N. Y.**

## BBB'S!

on keep BEES, subscribe for the Progressive Bee-keeper, a journal devoted to Bees, Honey, and kindred industries. 50 cts. per year. Sample copy, also a beautifully illustrated catalogue of Bee-keepers' supplies, FREE. Address **LEAHY MFG. CO., HIGGINSVILLE, MO.**

## "TROT 'EM OUT!"

I challenge any one to show up a strain of bees that are superior to my Golden Italians. They have excelled all competitors by practical test. Gentle, industrious, good comb-builders, enter the sections readily, are not inclined to swarm, and are perfect beauties. Descriptive circular free. Sections, \$2. per M. Dovetailed hives way down. **CHAS. D. DUVALL, Spencerville, Md.**

Daughters of one of Doolittle's very best golden five-banded breeders, mated to the very choicest drones from Jennie Atchley's 5-banded strain, thereby securing a direct cross with the best 5 banded stock obtainable. My aim is to rear nothing but the best, regardless of cost. Untested, 75c; 1/2 dozen, \$4.25; dozen, \$8.00. Safe delivery and satisfaction. Money-order office, Monongah. P. O. address, Worthington, W. Va. Queens ready May 25. **L. H. Robey.**

## For Sale.

30 colonies of Italian bees in A. I. Root's eight-frame Dovetailed hives, in good condition. Safe delivery guaranteed. **JOHN GRANT,** Butvin, Clermont Co., O.

## WHY

Can we sell warranted queens for 80 cts. each?

## BECAUSE

Only 1½ per cent are mismated, and have to be replaced. Tested queens, \$1 each; untested, 75 cts.; \$8.00 per doz.

J. W. K. SHAW & Co., Loreauville, La.

## FOR SALE.

I have 71 warranted Italian queens, reared in full colonies, now ready to mail at \$1.00 each. If not satisfactory, return her and get another without further charge.

R. A. HARDY, Lampasas, Texas.

## Look Here, Bee-keeper!

If you are in need of some bee-supplies, write for catalogue and price list. Every thing sold as cheap as **W. E. Smith.** the cheapest.

Kenton, Hardin Co., O.

**WILLIAM HEASTMAN, CITRA, FLA.,**

*Breeder of the celebrated "Orange-blossom" Italian Bees and Queens.*  
Untested, 75 cts.

## Bees and Queens.

Select tested queens, from imported mother, \$1.50 each; untested, 90 cts. each; 2-frame nucleus, with untested queen from imported mother, both frames containing brood and all adhering bees, \$2.00. Bees by the pound, 90 cts. Satisfaction guaranteed. Will be ready to ship May 15. **MRS. A. F. PROPER,** Portland, Jay Co., Ind.

## 5000 Golden Queens in 1894.

1 untested queen by mail.....	\$1 00
6 untested queens by mail.....	5 00
1 2-frame nucleus.....	2 75
2 2-frame nuclei.....	5 00

Untested queens with nucleus. Satisfaction in all cases. Send for sample of bees.

J. F. MICHAEL, German, Darke Co., O.

## Attention! Bees for Sale.

Full colonies and nuclei. Good stock; Langstroth frames. Write for prices. **H. Lathrop,** Browntown, Green Co., Wis.

**Burpee's Seed Annual** for 1894 is well worth having. Tell to all who plant seeds. **W. Atlee Burpee & Co.,** Philadelphia, Pa

## WE WILL PREPAY

Freight charges on orders for Root's polished sections, and 16-section white basswood shipping-cases, at his prices, to be shipped from factory to points within 800 miles, in lots of 5000 and 200 or over respectively. Send for catalog.

**B. WALKER, Evart, Mich.**

## MUTH'S HONEY EXTRACTOR.

Square Glass Honey-Jars,  
Tin Buckets, Bee-hives;  
Honey Sections, Etc., Etc.  
Perfection Cold-blast Smokers.

APPLY TO

**CHAS. F. MUTH & SON, Cincinnati, O.**

P. S.—Send 10-ct. stamp for "Practical Hints to Bee-keepers."

## Control Your Swarms, Requeen, &c.



Send 25c for samples of West's Patent Spiral wire Queen-Cell Protectors, and Pat. Spiral Queen Hatching and Introducing Cage, also best Bee-Escape, with circular explaining. 12 Cell-protectors, 60c; 100, \$3. 12 Cages, \$1.00; 100, \$5, by mail. Circular free. Address **N. D. WEST,** Middleburgh, Scho. Co., N. Y. Sold

also by all the leading supply-dealers.

I have one of the choicest flocks of

## Brown Leghorns in the State.

Keep no other kind. Eggs, 75c per 15; \$1.25 per 30.

**B. G. SCOTHAN, Rogersville, Mich.**

## EGGS For Hatching.

S. C. B. Leghorns, Silver Wyandottes, B. and W. Minorcas, P. Rocks, Langshans, \$1.00 per 13; Y. Wyandottes, I. Games, Red Caps, S. S. Hamburgs—Eggs, \$2.00 per 13. No circular. **AUGUST GOETZE & SON.** 3822 WOOD ST., WHEELING, W. VA.

## Italian Bees and Queens

Ready in May. Queens, \$1.00; bees by the lb., \$1.00; 1-frame nucleus, \$1.25; 2-frame, \$2.25. Also Barred P. R. eggs for setting, 15 for \$1.00.

**Mrs. A. A. Simpson, Swarts, Pa.**

## ITALIAN QUEENS.

Both three and five banded. Tested, \$1.50; three for \$4.00. Extra select breeders, \$2.00; three for \$5.00. Untested, \$1.00; three for \$2.50; six for \$5.00; twelve, for \$8.00. Safe arrival guaranteed or money refunded. Orders booked now, and pay when you want queens.

**C. F. BECKEY,**  
**MANITOU BEACH, LEN. CO., MICH.**

## STRONG, FULL COLONIES

of Pure Italian Bees, in Root's new Dovetailed hive, after June 1, only \$4.00 each.

**N. A. KNAPP, Rochester, Lorain Co., O.**

**BEE-MEN,** Get free Price List of Apiarian Supplies. **F. N. JOHNSON, Knoxville, Ill.**

## I Will Exchange

For your name and address, my pamphlet "How I Produce Comb Honey," and catalog of Chaff and Dovetailed hives, T Supers, Sections, Foundation, and every thing needed in the apiary. First-class goods, and prices reasonable.

**Geo. E. Hilton,**  
**Fremont, Mich.**

## PATENT WIRED COMB FOUNDATION

Has No Sag in Brood-frames.

*Thin Flat-Bottom Foundation*

Has no Fishbone in the Surplus Honey.

Being the cleanest, it is usually worked the quickest of any foundation made.

**J. VAN DEUSEN & SONS,**

1214db Sole Manufacturers,  
Sprout Brook, Montgomery Co., N. Y.



## TAKE NOTICE!

BEFORE placing your orders for SUPPLIES, write for prices on One-Piece Basswood Sections, Bee-Hives, Shipping-Crates, Frames, Foundation, Smokers, etc. **PAGE & KEITH,** 8tdb New London, Wis